

=> d his full

(FILE 'HOME' ENTERED AT 12:13:42 ON 31 AUG 2006)

FILE 'REGISTRY' ENTERED AT 12:13:50 ON 31 AUG 2006

L1 0 SEA ABB=ON PLU=ON (LI(L)SI(L)(NB OR TA OR W)(L)O(L)N)/E
LS (L) 5/ELC.SUB
L2 18 SEA ABB=ON PLU=ON (LI(L)SI(L)(NB OR TA OR W)(L)O(L)N)/E
L3 7 SEA ABB=ON PLU=ON LI2O/MF
L4 48 SEA ABB=ON PLU=ON O2SI/MF
L5 29 SEA ABB=ON PLU=ON N2/MF
L6 4 SEA ABB=ON PLU=ON NB2O5/MF
L7 4 SEA ABB=ON PLU=ON O5TA/MF
L8 15 SEA ABB=ON PLU=ON O3W/MF

FILE 'HCAPLUS' ENTERED AT 12:32:12 ON 31 AUG 2006

L9 19 SEA ABB=ON PLU=ON (L3 OR LITHIUM OXIDE OR LI2O OR
DILITHIUM OXIDE) AND (L4 OR SILICA OR SILICON OXIDE OR
SI02) AND (L5 AND NITROGEN OR N2) AND (L6 OR NIOBIUM
OXIDE OR NIOBIUM PENTOXIDE OR L7 OR TANTALUM OXIDE OR
TA2O5 OR L8 OR TUNGSTEN OXIDE OR WO3)
L10 4 SEA ABB=ON PLU=ON L9 (L) ELECTROLYT?
L11 4 SEA ABB=ON PLU=ON L9 AND ELECTROLYT?
L12 7 SEA ABB=ON PLU=ON L9 AND ELECTROCHEM?/SC,SX
L13 7 SEA ABB=ON PLU=ON L10 OR L11 OR L12

FILE 'REGISTRY' ENTERED AT 12:48:48 ON 31 AUG 2006

L14 244 SEA ABB=ON PLU=ON (LI(L)SI(L)(NB OR TA OR W)(L)O)/ELS

FILE 'HCAPLUS' ENTERED AT 12:49:39 ON 31 AUG 2006

L15 124 SEA ABB=ON PLU=ON L14
L16 1 SEA ABB=ON PLU=ON L15 AND L9
L17 9 SEA ABB=ON PLU=ON L15 (L) ELECTROLYT?
L18 12 SEA ABB=ON PLU=ON L15 AND ELECTROLYT?
L19 12 SEA ABB=ON PLU=ON L16 OR L17 OR L18
L20 11 SEA ABB=ON PLU=ON L19 AND ELECTROCHEM?/SC,SX
L21 10 SEA ABB=ON PLU=ON L20 NOT L13

=> file reg

FILE 'REGISTRY' ENTERED AT 13:29:15 ON 31 AUG 2006

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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=> d 11 que stat

L1 0 SEA FILE=REGISTRY ABB=ON PLU=ON (LI(L)SI(L)(NB OR TA
OR W)(L)O(L)N)/ELS (L) 5/ELC.SUB

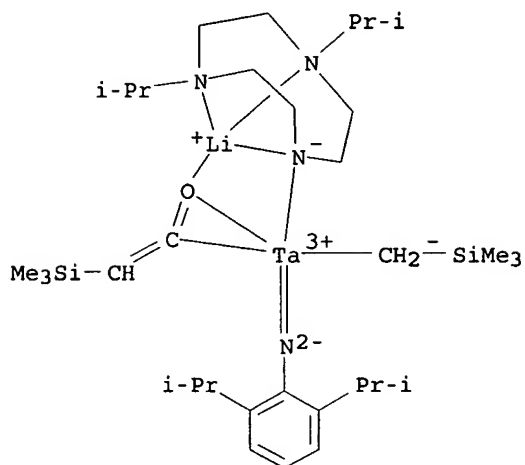
=> d 12 que stat

L2 18 SEA FILE=REGISTRY ABB=ON PLU=ON (LI(L)SI(L)(NB OR TA
OR W)(L)O(L)N)/ELS

=> d 12 1-18 ide

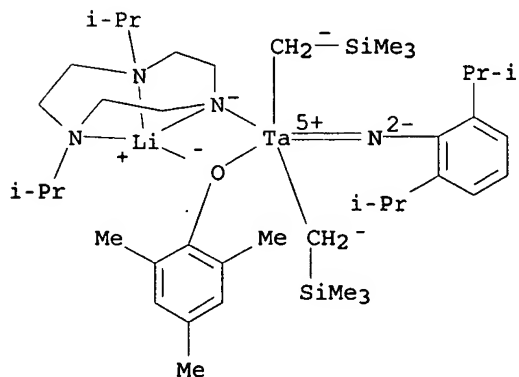
L2 ANSWER 1 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
RN 452057-31-7 REGISTRY
ED Entered STN: 17 Sep 2002
CN Lithium, [[2,6-bis(1-methylethyl)benzenaminato(2-
)]][(trimethylsilyl)methyl]tantalum][μ-[octahydro-1,4-bis(1-
methylethyl)-1H-1,4,7-triazoninato-κN1,κN4,κN7:.ka
ppa.N7]] [μ-[(O,1-η)-(trimethylsilyl)ethenone-κO]]-
(9CI) (CA INDEX NAME)

MF C33 H64 Li N4 O Si2 Ta
 CI CCS
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT



1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 2 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 452057-27-1 REGISTRY
 ED Entered STN: 17 Sep 2002
 CN Lithium, [[2,6-bis(1-methylethyl)benzenaminato(2-
)]]bis[(trimethylsilyl)methyl]tantalum [μ-[octahydro-1,4-bis(1-
 methylethyl)-1H-1,4,7-triazoninato-κN1,κN4,κN7:.ka
 ppa.N7]] [μ-(2,4,6-trimethylphenolato)]- (9CI) (CA INDEX NAME)
 MF C41 H76 Li N4 O Si2 Ta
 CI CCS
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT



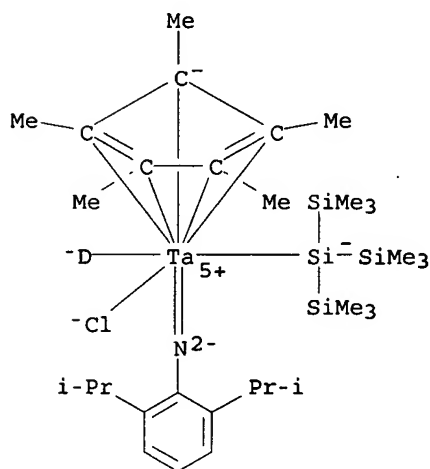
1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 3 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 449213-85-8 REGISTRY

ED Entered STN: 11 Sep 2002
 CN Lithium(1+), tris(tetrahydrofuran)-, [2,6-bis(1-methylethyl)benzenaminato(2-)]chlorohydro-d-[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]tantalate(1-) (9CI) (CA INDEX NAME)
 MF C31 H59 Cl D N Si4 Ta . C12 H24 Li O3
 SR CA
 LC STN Files: CA, CAPLUS

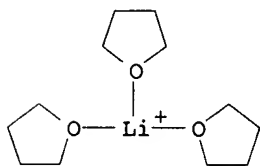
CM 1

CRN 449213-84-7
 CMF C31 H59 Cl D N Si4 Ta
 CCI CCS



CM 2

CRN 61915-36-4
 CMF C12 H24 Li O3
 CCI CCS



1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 4 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 449213-78-9 REGISTRY
 ED Entered STN: 11 Sep 2002
 CN Lithium(1+), tetrakis(tetrahydrofuran)-, (T-4)-, [2,6-bis(1-methylethyl)benzenaminato(2-)] [bis(2,4,6-trimethylphenyl)silane-κH,κSi]chloro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]tantalate(1-) (9CI) (CA INDEX NAME)
 MF C40 H56 Cl N Si Ta . C16 H32 Li O4
 SR CA

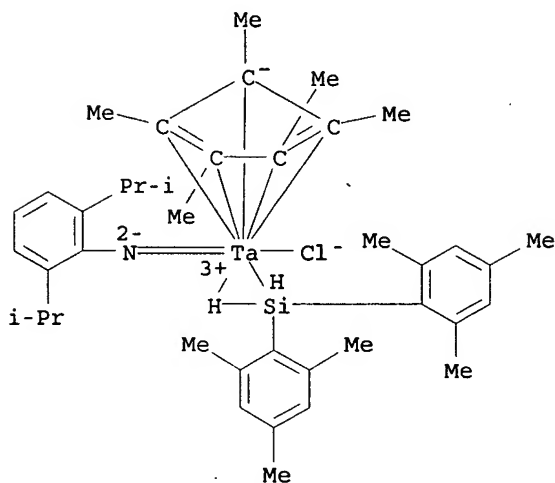
LC STN Files: CA, CAPLUS, CASREACT

CM 1

CRN 449213-77-8

CMF C40 H56 Cl N Si Ta

CCI CCS

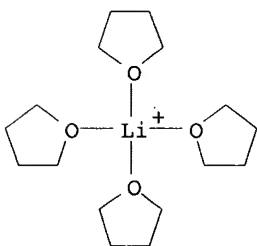


CM 2

CRN 48186-27-2

CMF C16 H32 Li O4

CCI CCS



1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 5 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN

RN 449213-75-6 REGISTRY

ED Entered STN: 11 Sep 2002

CN Lithium(1+), tris(tetrahydrofuran)-, [2,6-bis(1-methylethyl)benzenaminato(2-)]chlorohydro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl](triphenylsilyl)tantalate(1-) (9CI) (CA INDEX NAME)

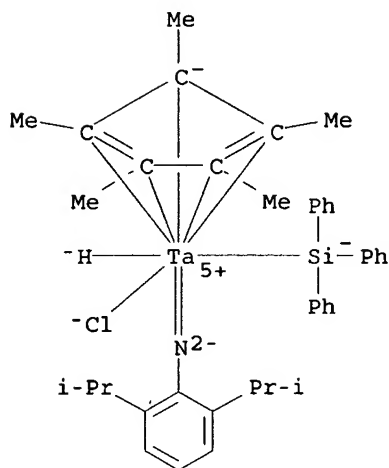
MF C40 H48 Cl N Si Ta . C12 H24 Li O3

SR CA

LC STN Files: CA, CAPLUS, CASREACT

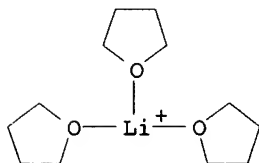
CM 1

CRN 449213-74-5
 CMF C40 H48 Cl N Si Ta
 CCI CCS



CM 2

CRN 61915-36-4
 CMF C12 H24 Li O3
 CCI CCS

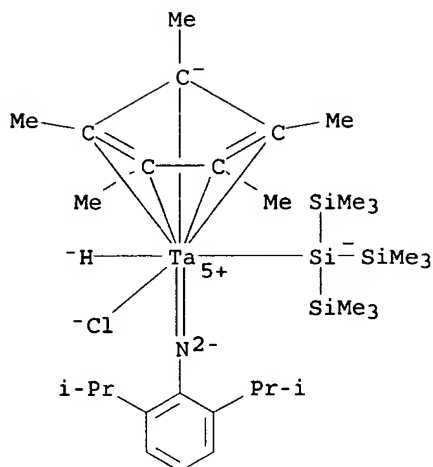


1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 6 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 449213-61-0 REGISTRY
 ED Entered STN: 11 Sep 2002
 CN Lithium(1+), tris(tetrahydrofuran)-, [2,6-bis(1-methylethyl)benzenaminate(2-)]chlorohydro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]tantalate(1-) (9CI) (CA INDEX NAME)
 MF C31 H60 Cl N Si4 Ta . C12 H24 Li O3
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT

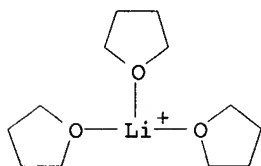
CM 1

CRN 449213-60-9
 CMF C31 H60 Cl N Si4 Ta
 CCI CCS



CM 2

CRN 61915-36-4
 CMF C12 H24 Li O3
 CCI CCS

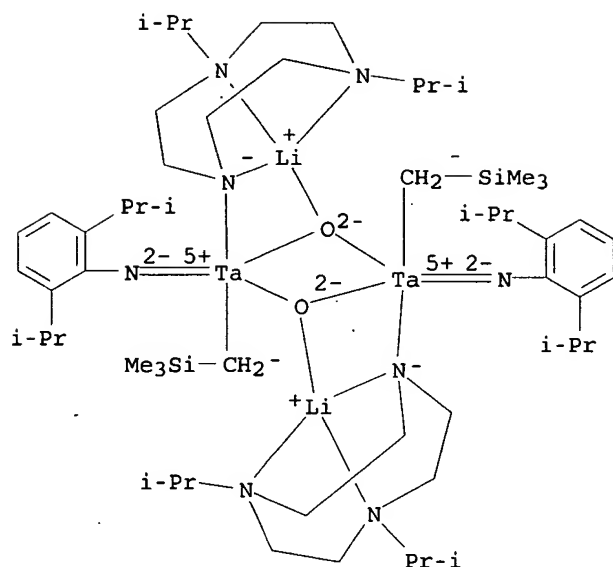


1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 7 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 364732-20-7 REGISTRY
 ED Entered STN: 26 Oct 2001
 CN Lithium, bis[[2,6-bis(1-methylethyl)benzenaminato(2-
)]][(trimethylsilyl)methyl]tantalum]bis[μ-[octahydro-1,4-bis(1-
 methylethyl)-1H-1,4,7-triazoninato-κN1,κN4,κN7:.ka
 ppa.N7]]di-μ3-oxodi-, stereoisomer, compd. with benzene (1:2)
 (9CI) (CA INDEX NAME)
 MF C56 H108 Li2 N8 O2 Si2 Ta2 . 2 C6 H6
 SR CA
 LC STN Files: CA, CAPLUS

CM 1

CRN 364636-13-5
 CMF C56 H108 Li2 N8 O2 Si2 Ta2
 CCI CCS



CM 2

CRN 71-43-2

CMF C6 H6



1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 8 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN

RN 364636-14-6 REGISTRY

ED Entered STN: 25 Oct 2001

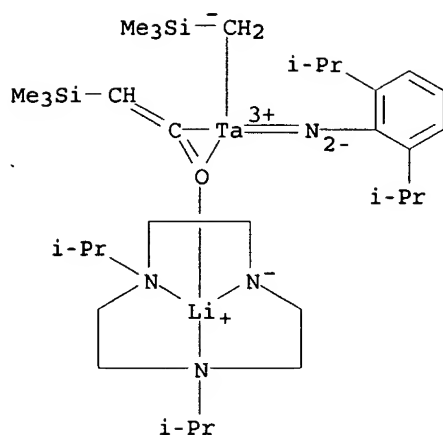
CN Lithium, [[2,6-bis(1-methylethyl)benzenaminato(2-
)][[(trimethylsilyl)methyl]tantalum][octahydro-1,4-bis(1-methylethyl)-
 1H-1,4,7-triazoninato-κN1,κN4,κN7][μ-[(O,1-
 η)-(trimethylsilyl)ethenone-κO]]- (9CI) (CA INDEX NAME)

MF C33 H64 Li N4 O Si2 Ta

CI CCS

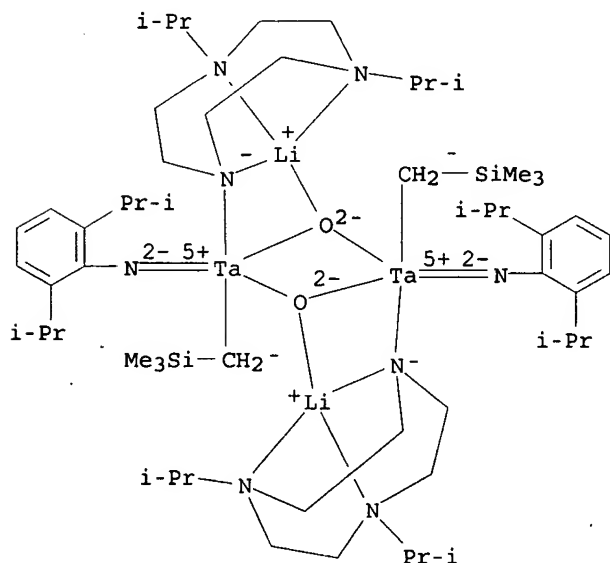
SR CA

LC STN Files: CA, CAPLUS, CASREACT



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 9 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
RN 364636-13-5 REGISTRY
ED Entered STN: 25 Oct 2001
CN Lithium, bis[[2,6-bis(1-methylethyl)benzenaminato(2-
)] [(trimethylsilyl)methyl]tantalum]bis[μ-[octahydro-1,4-bis(1-
methylethyl)-1H-1,4,7-triazoninato-κN1,κN4,κN7:.ka
ppa.N7]]di-μ3-oxodi-, stereoisomer (9CI) (CA INDEX NAME)
MF C56 H108 Li2 N8 O2 Si2 Ta2
CI CCS, COM
SR CA
LC STN Files: CA, CAPLUS, CASREACT



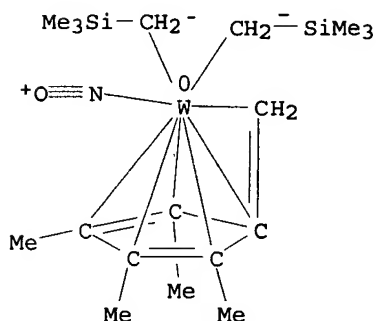
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 10 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN

RN 199784-77-5 REGISTRY
 ED Entered STN: 15 Jan 1998
 CN Lithium(1+), tris(tetrahydrofuran)-, nitrosyl(η^6 -1,2,3,4-tetramethyl-5-methylene-1,3-cyclopentadiene)bis[(trimethylsilyl)methyl]tungstate(1-) (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Tungstate(1-), nitrosyl(η^6 -1,2,3,4-tetramethyl-5-methylene-1,3-cyclopentadiene)bis[(trimethylsilyl)methyl]-, tris(tetrahydrofuran)lithium(1+) (9CI)
 MF C18 H36 N O Si2 W . C12 H24 Li O3
 SR CA
 LC STN Files: CA, CAPLUS

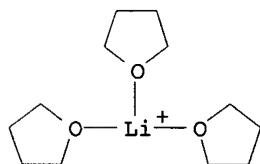
CM 1

CRN 199784-76-4
 CMF C18 H36 N O Si2 W
 CCI CCS



CM 2

CRN 61915-36-4
 CMF C12 H24 Li O3
 CCI CCS



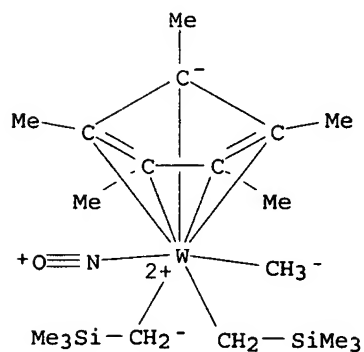
1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 11 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 199784-75-3 REGISTRY
 ED Entered STN: 15 Jan 1998
 CN Lithium(1+), tris(tetrahydrofuran)-, methylnitrosyl[(1,2,3,4,5- η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]bis[(trimethylsilyl)methyl]tungstate(1-) (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Tungstate(1-), methylnitrosyl[(1,2,3,4,5- η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]bis[(trimethylsilyl)methyl]-, tris(tetrahydrofuran)lithium(1+) (9CI)
 MF C19 H40 N O Si2 W . C12 H24 Li O3

SR CA
LC STN Files: CA, CAPLUS

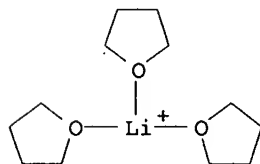
CM 1

CRN 199784-74-2
CMF C19 H40 N O Si2 W
CCI CCS



CM 2

CRN 61915-36-4
CMF C12 H24 Li O3
CCI CCS

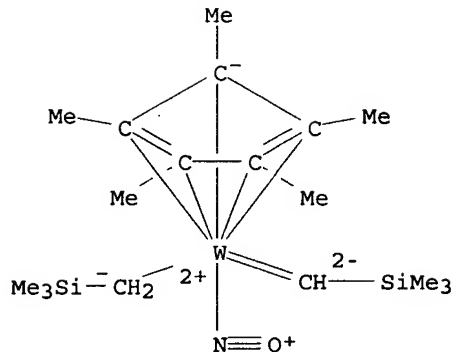


1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 12 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
RN 199784-73-1 REGISTRY
ED Entered STN: 15 Jan 1998
CN Lithium(1+), (tetrahydrofuran)-, nitrosyl[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][(trimethylsilyl)methyl][(trimethylsilyl)methylene]tungstate(1-)
(9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Tungstate(1-), nitrosyl[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][(trimethylsilyl)methyl][(trimethylsilyl)methylene]-, (tetrahydrofuran)lithium(1+) (9CI)
MF C18 H36 N O Si2 W . C4 H8 Li O
SR CA
LC STN Files: CA, CAPLUS

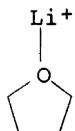
CM 1

CRN 199784-72-0
CMF C18 H36 N O Si2 W
CCI CCS



CM 2

CRN 53307-59-8
 CMF C4 H8 Li O
 CCI CCS



1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 13 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN

RN 197301-33-0 REGISTRY

ED Entered STN: 14 Nov 1997

CN Lithium(1+), bis(pyridine)-, (OC-6-11)-tris[1,1,3,3-tetraphenyl-1,3-disiloxanediolato(2-)-κO1,κO3]tantarate(1-), compd. with methylbenzene and pyridine (2:1:2) (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Tantarate(1-), tris[1,1,3,3-tetraphenyl-1,3-disiloxanediolato(2-)-κO1,κO3]-, (OC-6-11)-, bis(pyridine)lithium(1+), compd. with methylbenzene and pyridine (2:1:2) (9CI)

MF C72 H60 O9 Si6 Ta . C10 H10 Li N2 . 1/2 C7 H8 . C5 H5 N

SR CA

LC STN Files: CA, CAPLUS

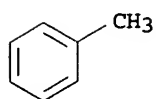
CM 1

CRN 110-86-1
 CMF C5 H5 N



CM 2

CRN 108-88-3
CMF C7 H8

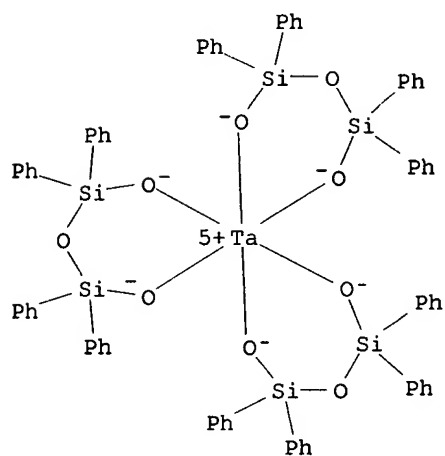


CM 3

CRN 197301-32-9
CMF C72 H60 O9 Si6 Ta . C10 H10 Li N2

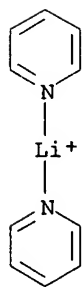
CM 4

CRN 197301-31-8
CMF C72 H60 O9 Si6 Ta
CCI CCS



CM 5

CRN 102566-56-3
CMF C10 H10 Li N2
CCI CCS



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

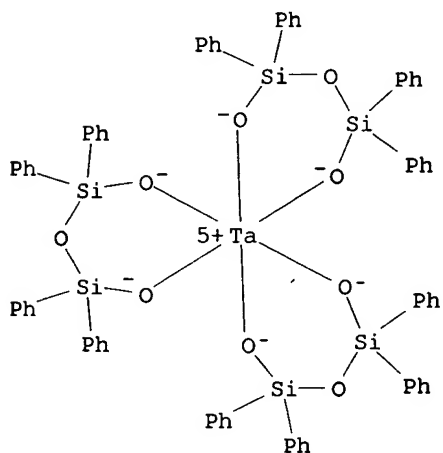
L2 ANSWER 14 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 197301-32-9 REGISTRY
 ED Entered STN: 14 Nov 1997
 CN Lithium(1+), bis(pyridine)-, (OC-6-11)-tris[1,1,3,3-tetraphenyl-1,3-disiloxanediolato(2-)- κ O1, κ O3]tantalate(1-) (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Tantalate(1-), tris[1,1,3,3-tetraphenyl-1,3-disiloxanediolato(2-)- κ O1, κ O3]-, (OC-6-11)-, bis(pyridine)lithium(1+) (9CI)
 MF C72 H60 O9 Si6 Ta . C10 H10 Li N2
 CI COM
 SR CA
 LC STN Files: CA, CAPLUS

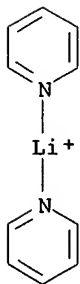
CM 1

CRN 197301-31-8
 CMF C72 H60 O9 Si6 Ta
 CCI CCS



CM 2

CRN 102566-56-3
 CMF C10 H10 Li N2
 CCI CCS



1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

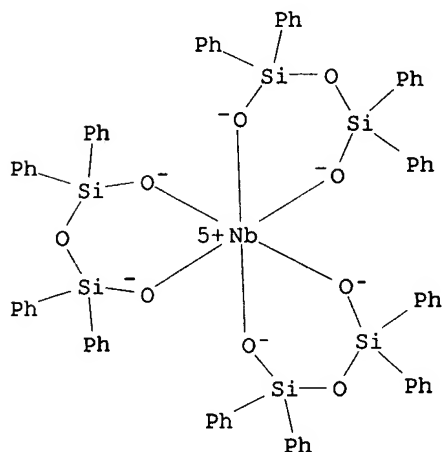
L2 ANSWER 15 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 197301-30-7 REGISTRY
 ED Entered STN: 14 Nov 1997
 CN Lithium(1+), bis(pyridine)-, (OC-6-11)-tris[1,1,3,3-tetraphenyl-1,3-disiloxanediolato(2-)- κ O1, κ O3]niobate(1-) (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Niobate(1-), tris[1,1,3,3-tetraphenyl-1,3-disiloxanediolato(2-)- κ O1, κ O3]-, (OC-6-11)-, bis(pyridine)lithium(1+) (9CI)
 MF C72 H60 Nb O9 Si6 . C10 H10 Li N2
 SR CA
 LC STN Files: CA, CAPLUS

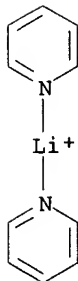
CM 1

CRN 197301-29-4
 CMF C72 H60 Nb O9 Si6
 CCI CCS



CM 2

CRN 102566-56-3
 CMF C10 H10 Li N2
 CCI CCS



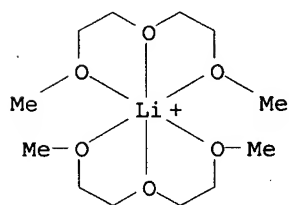
1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 16 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 190856-64-5 REGISTRY

ED Entered STN: 04 Jul 1997
 CN Lithium(1+), bis[1,1'-(oxy- κ O)bis[2-(methoxy- κ O)ethane]]-,
 (OC-6-1'2)-, (OC-6-22)-pentacarbonyl[1,1,1-trimethyl-N-
 (trimethylsilyl)silanaminato]tungstate(1-) (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Tungstate(1-), pentacarbonyl[1,1,1-trimethyl-N-
 (trimethylsilyl)silanaminato]-, (OC-6-22)-, (OC-6-1'2)-bis[1,1'-(oxy-
 κ O)bis[2-(methoxy- κ O)ethane]]lithium(1+) (9CI)
 MF C12 H28 Li O6 . C11 H18 N O5 Si2 W
 SR CA
 LC STN Files: CA, CAPLUS

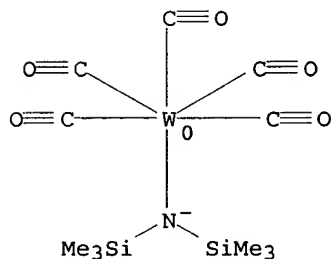
CM 1

CRN 190856-60-1
 CMF C12 H28 Li O6
 CCI CCS



CM 2

CRN 190773-20-7
 CMF C11 H18 N O5 Si2 W
 CCI CCS

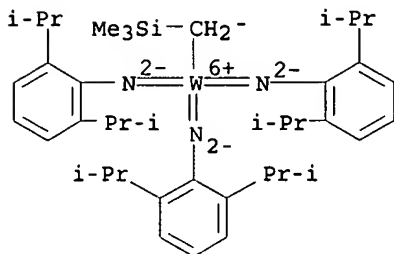


3 REFERENCES IN FILE CA (1907 TO DATE)
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 17 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 165270-13-3 REGISTRY
 ED Entered STN: 26 Jul 1995
 CN Lithium(1+), tetrakis(tetrahydrofuran)-, (T-4)-,
 (T-4)-tris[2,6-bis(1-methylethyl)benzenaminato(2-
)][[(trimethylsilyl)methyl]tungstate(1-) (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Tungstate(1-), tris[2,6-bis(1-methylethyl)benzenaminato(2-
)][[(trimethylsilyl)methyl]-, (T-4)-, (T-4)-
 tetrakis(tetrahydrofuran)lithium(1+) (9CI)
 MF C40 H62 N3 Si W . C16 H32 Li O4
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT

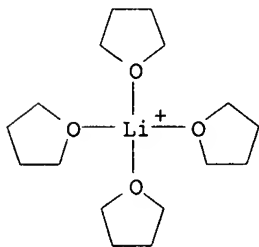
CM 1

CRN 165270-12-2
 CMF C40 H62 N3 Si W
 CCI CCS



CM 2

CRN 48186-27-2
 CMF C16 H32 Li O4
 CCI CCS



1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

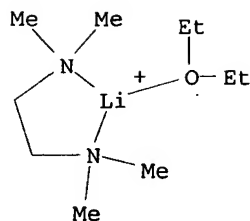
L2 ANSWER 18 OF 18 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 116309-08-1 REGISTRY
 ED Entered STN: 10 Sep 1988
 CN Lithium(1+), [1,1'-oxybis[ethane]] (N,N,N',N'-tetramethyl-1,2-ethanediamine-N,N')-, stereoisomer of decacarbonyl[μ-[1,2-phenylenebis[1-oxo-2-(trimethylsilyl)-2,1-ethanediy]]]ditungstate(2-) (2:1) (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN 1,2-Benzenediacetaldehyde, α,α'-bis(trimethylsilyl)-, tungsten complex, (R*,S*)-
 CN 1,2-Ethanediamine, N,N,N',N'-tetramethyl-, lithium complex
 CN Tungstate(2-), decacarbonyl[μ-[1,2-phenylenebis[1-oxo-2-(trimethylsilyl)-2,1-ethanediy]]]di-, stereoisomer, bis[[1,1'-oxybis[ethane]] (N,N,N',N'-tetramethyl-1,2-ethanediamine-N,N')]lithium(1+)] (9CI)
 MF C26 H24 O12 Si2 W2 . 2 C10 H26 Li N2 O
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT

CM 1

CRN 116309-07-0
 CMF C10 H26 Li N2 O
 CCI CCS

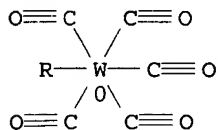
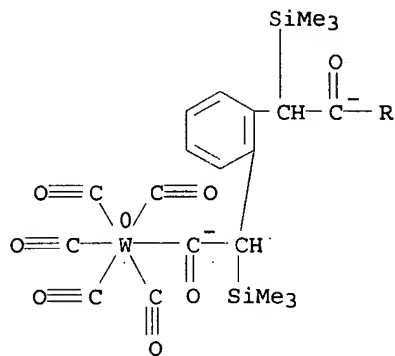


CM 2

CRN 116309-06-9

CMF C26 H24 O12 Si2 W2

CCI CCS



1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> d 121 que stat

L3 7 SEA FILE=REGISTRY ABB=ON PLU=ON LI2O/MF
 L4 48 SEA FILE=REGISTRY ABB=ON PLU=ON O2SI/MF
 L5 29 SEA FILE=REGISTRY ABB=ON PLU=ON N2/MF
 L6 4 SEA FILE=REGISTRY ABB=ON PLU=ON NB2O5/MF
 L7 4 SEA FILE=REGISTRY ABB=ON PLU=ON O5TA/MF
 L8 15 SEA FILE=REGISTRY ABB=ON PLU=ON O3W/MF
 L9 19 SEA FILE=HCAPLUS ABB=ON PLU=ON (L3 OR LITHIUM OXIDE OR
 LI2O OR DILITHIUM OXIDE) AND (L4 OR SILICA OR SILICON
 OXIDE OR SI02) AND (L5 AND NITROGEN OR N2) AND (L6 OR
 NIOBIUM OXIDE OR NIOBIUM PENTOXIDE OR L7 OR TANTALUM
 OXIDE OR TA2O5 OR L8 OR TUNGSTEN OXIDE OR WO3)
 L10 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 (L) ELECTROLYT?
 L11 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 AND ELECTROLYT?
 L12 7 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 AND ELECTROCHEM?/SC,S
 X
 L13 7 SEA FILE=HCAPLUS ABB=ON PLU=ON L10 OR L11 OR L12
 L14 244 SEA FILE=REGISTRY ABB=ON PLU=ON (LI(L)SI(L)(NB OR TA

OR W) (L)O)/ELS

L15 124 SEA FILE=HCAPLUS ABB=ON PLU=ON L14

L16 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 AND L9

L17 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 (L) ELECTROLYT?

L18 12 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 AND ELECTROLYT?

L19 12 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L17 OR L18

L20 11 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 AND ELECTROCHEM?/SC,
SX

L21 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 NOT L13

=> file hcaplus

FILE 'HCAPLUS' ENTERED AT 13:30:27 ON 31 AUG 2006

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=> d l21 1-10 ibib abs hitstr hitind

L21 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:359170 HCAPLUS

DOCUMENT NUMBER: 144:394658

TITLE: Lithium phosphate solid oxide

electrolytes and solid batteries

INVENTOR(S): Matsumura, Naoki; Ukaji, Masaya; Mino, Shinji;
Shibano, Yasuyuki

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 25 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006108026	A2	20060420	JP 2004-296139	200410 08
			JP 2004-296139	200410 08

PRIORITY APPLN. INFO.:

AB **Electrolytes** having compn. formula $\text{Li}_a\text{Pb}_b\text{M}(1-b)\text{TcO}_d$ (M = Group 13 and 14 element; T = transition metal; a = 0.426-6.99; b = 0.01-0.99; c = 0.01-1; d = 1.7725-8) are claimed. Entirely solid batteries including the **electrolytes** are also claimed. Degrdsn. of the **electrolytes** are prevented even under wet conditions.

IT **883121-02-6P**, Lithium tungsten phosphate silicate ($\text{Li}_3.5\text{W}_0.01(\text{PO}_4)0.5(\text{SiO}_4)0.5$) **883121-04-8P**, Lithium tungsten phosphate silicate ($\text{Li}_3.5\text{W}_0.05(\text{PO}_4)0.5(\text{SiO}_4)0.5$) **883121-06-0P**, Lithium tungsten phosphate silicate ($\text{Li}_3.5\text{W}_0.1(\text{PO}_4)0.5(\text{SiO}_4)0.5$) **883121-08-2P**, Lithium tungsten phosphate silicate ($\text{Li}_3.5\text{W}_0.2(\text{PO}_4)0.5(\text{SiO}_4)0.5$) **883121-10-6P**, Lithium tungsten phosphate silicate ($\text{Li}_3.5\text{W}_0.5(\text{PO}_4)0.5(\text{SiO}_4)0.5$) **883121-12-8P**, Lithium tungsten phosphate silicate ($\text{Li}_3.5\text{W}_0.52(\text{PO}_4)0.5(\text{SiO}_4)0.5$) **883121-14-0P**, Lithium tungsten phosphate silicate ($\text{Li}_3.5\text{W}_0.6(\text{PO}_4)0.5(\text{SiO}_4)0.5$) **883121-18-4P**, Lithium tantalum phosphate silicate ($\text{Li}_3.5\text{Ta}_0.2(\text{PO}_4)0.5(\text{SiO}_4)0.5$) **883121-26-4P**, Lithium tungsten phosphate silicate ($\text{Li}_3.2\text{W}_0.2(\text{PO}_4)0.8(\text{SiO}_4)0.2$) **883121-30-0P**, Lithium silicon tungsten oxide phosphate ($\text{Li}_2.97\text{Si}_0.01\text{W}_0.200.02(\text{PO}_4)0.99$)

883121-32-2P, Lithium silicon tungsten oxide phosphate
 (Li_{2.74}Si_{0.1W}O_{2.20}(PO₄)_{0.9}) 883121-34-4P
 883121-36-6P 883121-38-8P 883121-40-2P,
 Lithium silicon tungsten oxide phosphate
 (Li_{0.43}Si_{0.99}W_{0.20}(PO₄)_{0.01}) 883121-54-8P
 883121-56-0P 883121-58-2P 883121-60-6P
 883121-62-8P 883121-64-0P 883121-66-2P
 883121-68-4P 883121-70-8P 883121-72-0P
 883121-74-2P 883121-76-4P 883121-78-6P
 883121-80-0P 883121-82-2P 883121-84-4P
 883121-86-6P 883121-94-6P, Lithium tungsten
 phosphate silicate (Li_{3.6}W_{0.3}(PO₄)_{0.4}(SiO₄)_{0.6}) 883121-96-8P
 , Lithium tungsten phosphate silicate (Li_{3.5}W_{0.3}(PO₄)_{0.5}(SiO₄)_{0.5})
 883121-98-0P, Lithium tungsten phosphate silicate
 (Li_{3.4}W_{0.3}(PO₄)_{0.6}(SiO₄)_{0.4}) 883122-06-3P, Lithium
 tantalum phosphate silicate (Li_{3.6}Ta_{0.3}(PO₄)_{0.4}(SiO₄)_{0.6})
 883122-08-5P, Lithium tantalum phosphate silicate
 (Li_{3.5}Ta_{0.3}(PO₄)_{0.5}(SiO₄)_{0.5}) 883122-10-9P, Lithium
 tantalum phosphate silicate (Li_{3.4}Ta_{0.3}(PO₄)_{0.6}(SiO₄)_{0.4})
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM
 (Technical or engineered material use); PREP (Preparation); USES
 (Uses)
 (Group 13 and/or 14 element-contg. Li transition metal phosphate
 solid oxide electrolytes for all-solid lithium
 batteries)

RN 883121-02-6 HCAPLUS

CN Lithium tungsten phosphate silicate (Li_{3.5}W_{0.01}(PO₄)_{0.5}(SiO₄)_{0.5})
 (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.01	7440-33-7
Li	3.5	7439-93-2

RN 883121-04-8 HCAPLUS

CN Lithium tungsten phosphate silicate (Li_{3.5}W_{0.05}(PO₄)_{0.5}(SiO₄)_{0.5})
 (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.05	7440-33-7
Li	3.5	7439-93-2

RN 883121-06-0 HCAPLUS

CN Lithium tungsten phosphate silicate (Li_{3.5}W_{0.1}(PO₄)_{0.5}(SiO₄)_{0.5})
 (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.1	7440-33-7
Li	3.5	7439-93-2

RN 883121-08-2 HCAPLUS

CN Lithium tungsten phosphate silicate (Li_{3.5}W_{0.2}(PO₄)_{0.5}(SiO₄)_{0.5})
 (9CI) (CA INDEX NAME)

Component	Ratio	Component
-----------	-------	-----------

		Registry Number
=====	=====	=====
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.2	7440-33-7
Li	3.5	7439-93-2

RN 883121-10-6 HCAPLUS

CN Lithium tungsten phosphate silicate (Li3.5W0.5(PO4)0.5(SiO4)0.5)
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.5	7440-33-7
Li	3.5	7439-93-2

RN 883121-12-8 HCAPLUS

CN Lithium tungsten phosphate silicate (Li3.5W0.52(PO4)0.5(SiO4)0.5)
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.52	7440-33-7
Li	3.5	7439-93-2

RN 883121-14-0 HCAPLUS

CN Lithium tungsten phosphate silicate (Li3.5W0.6(PO4)0.5(SiO4)0.5)
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.6	7440-33-7
Li	3.5	7439-93-2

RN 883121-18-4 HCAPLUS

CN Lithium tantalum phosphate silicate (Li3.5Ta0.2(PO4)0.5(SiO4)0.5)
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
Ta	0.2	7440-25-7
Li	3.5	7439-93-2

RN 883121-26-4 HCAPLUS

CN Lithium tungsten phosphate silicate (Li3.2W0.2(PO4)0.8(SiO4)0.2)
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O4Si	0.2	17181-37-2
O4P	0.8	14265-44-2
W	0.2	7440-33-7
Li	3.2	7439-93-2

RN 883121-30-0 HCAPLUS
 CN Lithium silicon tungsten oxide phosphate
 (Li2.97Si0.01W0.200.02(PO4)0.99) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.02	17778-80-2
O4P	0.99	14265-44-2
W	0.2	7440-33-7
Si	0.01	7440-21-3
Li	2.97	7439-93-2

RN 883121-32-2 HCAPLUS
 CN Lithium silicon tungsten oxide phosphate
 (Li2.74Si0.1W0.200.22(PO4)0.9) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.22	17778-80-2
O4P	0.9	14265-44-2
W	0.2	7440-33-7
Si	0.1	7440-21-3
Li	2.74	7439-93-2

RN 883121-34-4 HCAPLUS
 CN Lithium tungsten metaphosphate oxide silicate
 (Li2.22W0.2(PO3)0.700.16(SiO4)0.3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.16	17778-80-2
O4Si	0.3	17181-37-2
O3P	0.7	15389-19-2
W	0.2	7440-33-7
Li	2.22	7439-93-2

RN 883121-36-6 HCAPLUS
 CN Lithium tungsten metaphosphate oxide silicate
 (Li1.18W0.2(PO3)0.300.09(Si2O5)0.35) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O5Si2	0.35	20328-07-8
O	0.09	17778-80-2
O3P	0.3	15389-19-2
W	0.2	7440-33-7
Li	1.18	7439-93-2

RN 883121-38-8 HCAPLUS
 CN Lithium phosphorus tungsten oxide silicate
 (Li0.66P0.1W0.200.13(Si2O5)0.45) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O5Si2	0.45	20328-07-8
O	0.13	17778-80-2
P	0.1	7723-14-0
W	0.2	7440-33-7
Li	0.66	7439-93-2

RN 883121-40-2 HCAPLUS
 CN Lithium silicon tungsten oxide phosphate
 (Li_{0.43}Si_{0.99}W_{0.20}2.18(PO₄)_{0.01}) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2.18	17778-80-2
O4P	0.01	14265-44-2
W	0.2	7440-33-7
Si	0.99	7440-21-3
Li	0.43	7439-93-2

RN 883121-54-8 HCAPLUS
 CN Lithium tungsten oxide phosphate silicate
 (Li_{3.5}W_{0.01}O_{0.03}(PO₄)_{0.5}(SiO₄)_{0.5}) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.03	17778-80-2
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.01	7440-33-7
Li	3.5	7439-93-2

RN 883121-56-0 HCAPLUS
 CN Lithium tungsten oxide phosphate silicate
 (Li_{3.5}W_{0.10}O_{0.3}(PO₄)_{0.5}(SiO₄)_{0.5}) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.3	17778-80-2
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.1	7440-33-7
Li	3.5	7439-93-2

RN 883121-58-2 HCAPLUS
 CN Lithium tungsten oxide phosphate silicate
 (Li_{3.5}W_{0.50}O_{0.9}(PO₄)_{0.5}(SiO₄)_{0.5}) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.9	17778-80-2
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.5	7440-33-7
Li	3.5	7439-93-2

RN 883121-60-6 HCAPLUS
 CN Lithium tungsten oxide phosphate silicate
 (Li_{3.5}W_{0.50}O_{1.5}(PO₄)_{0.5}(SiO₄)_{0.5}) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1.5	17778-80-2
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.5	7440-33-7
Li	3.5	7439-93-2

RN 883121-62-8 HCAPLUS

CN Lithium tungsten oxide phosphate silicate
(Li3.5W0.7O2.1(PO4)0.5(SiO4)0.5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2.1	17778-80-2
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.7	7440-33-7
Li	3.5	7439-93-2

RN 883121-64-0 HCAPLUS

CN Lithium tungsten oxide phosphate silicate
(Li3.5WO3(PO4)0.5(SiO4)0.5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	3	17778-80-2
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	1	7440-33-7
Li	3.5	7439-93-2

RN 883121-66-2 HCAPLUS

CN Lithium tungsten oxide phosphate silicate
(Li3.01W0.01O0.03(PO4)0.99(SiO4)0.01) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.03	17778-80-2
O4Si	0.01	17181-37-2
O4P	0.99	14265-44-2
W	0.01	7440-33-7
Li	3.01	7439-93-2

RN 883121-68-4 HCAPLUS

CN Lithium tungsten oxide phosphate silicate
(Li3.01W0.10O0.3(PO4)0.99(SiO4)0.01) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.3	17778-80-2
O4Si	0.01	17181-37-2
O4P	0.99	14265-44-2
W	0.1	7440-33-7
Li	3.01	7439-93-2

RN 883121-70-8 HCAPLUS

CN Lithium tungsten oxide phosphate silicate
(Li3.01W0.5O1.5(PO4)0.99(SiO4)0.01) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1.5	17778-80-2
O4Si	0.01	17181-37-2
O4P	0.99	14265-44-2
W	0.5	7440-33-7
Li	3.01	7439-93-2

RN 883121-72-0 HCAPLUS

CN Lithium tungsten oxide phosphate silicate

(Li3.01W0.702.1(P04)0.99(SiO4)0.01) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2.1	17778-80-2
O4Si	0.01	17181-37-2
O4P	0.99	14265-44-2
W	0.7	7440-33-7
Li	3.01	7439-93-2

RN 883121-74-2 HCAPLUS

CN Lithium tungsten oxide phosphate silicate

(Li3.01W03(P04)0.99(SiO4)0.01) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	3	17778-80-2
O4Si	0.01	17181-37-2
O4P	0.99	14265-44-2
W	1	7440-33-7
Li	3.01	7439-93-2

RN 883121-76-4 HCAPLUS

CN Lithium tantalum oxide phosphate silicate

(Li4.02Ta0.0100.04(P04)0.01(SiO4)0.99) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.04	17778-80-2
O4Si	0.99	17181-37-2
O4P	0.01	14265-44-2
Ta	0.01	7440-25-7
Li	4.02	7439-93-2

RN 883121-78-6 HCAPLUS

CN Lithium tantalum oxide phosphate silicate

(Li4.29Ta0.100.4(P04)0.01(SiO4)0.99) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	0.4	17778-80-2
O4Si	0.99	17181-37-2
O4P	0.01	14265-44-2
Ta	0.1	7440-25-7
Li	4.29	7439-93-2

RN 883121-80-0 HCAPLUS

CN Lithium tantalum oxide phosphate silicate

(Li4.89Ta0.301.2(P04)0.01(SiO4)0.99) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1.2	17778-80-2
O4Si	0.99	17181-37-2
O4P	0.01	14265-44-2
Ta	0.3	7440-25-7
Li	4.89	7439-93-2

RN 883121-82-2 HCAPLUS

CN Lithium tantalum oxide phosphate silicate

(Li5.49Ta0.502(P04)0.01(SiO4)0.99) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	2	17778-80-2
O4Si	0.99	17181-37-2
O4P	0.01	14265-44-2
Ta	0.5	7440-25-7
Li	5.49	7439-93-2

RN 883121-84-4 HCAPLUS

CN Lithium tantalum oxide phosphate silicate
(Li6.69Ta0.903.6(PO4)0.01(SiO4)0.99) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	3.6	17778-80-2
O4Si	0.99	17181-37-2
O4P	0.01	14265-44-2
Ta	0.9	7440-25-7
Li	6.69	7439-93-2

RN 883121-86-6 HCAPLUS

CN Lithium tantalum oxide phosphate silicate
(Li6.99TaO4(PO4)0.01(SiO4)0.99) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	4	17778-80-2
O4Si	0.99	17181-37-2
O4P	0.01	14265-44-2
Ta	1	7440-25-7
Li	6.99	7439-93-2

RN 883121-94-6 HCAPLUS

CN Lithium tungsten phosphate silicate (Li3.6W0.3(PO4)0.4(SiO4)0.6)
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O4Si	0.6	17181-37-2
O4P	0.4	14265-44-2
W	0.3	7440-33-7
Li	3.6	7439-93-2

RN 883121-96-8 HCAPLUS

CN Lithium tungsten phosphate silicate (Li3.5W0.3(PO4)0.5(SiO4)0.5)
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
W	0.3	7440-33-7
Li	3.5	7439-93-2

RN 883121-98-0 HCAPLUS

CN Lithium tungsten phosphate silicate (Li3.4W0.3(PO4)0.6(SiO4)0.4)
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
-----------	-------	------------------------------

=====+=====+=====		
O4Si	0.4	17181-37-2
O4P	0.6	14265-44-2
W	0.3	7440-33-7
Li	3.4	7439-93-2

RN 883122-06-3 HCAPLUS

CN Lithium tantalum phosphate silicate (Li_{3.6}Ta_{0.3}(PO₄)_{0.4}(SiO₄)_{0.6})
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O4Si	0.6	17181-37-2
O4P	0.4	14265-44-2
Ta	0.3	7440-25-7
Li	3.6	7439-93-2

RN 883122-08-5 HCAPLUS

CN Lithium tantalum phosphate silicate (Li_{3.5}Ta_{0.3}(PO₄)_{0.5}(SiO₄)_{0.5})
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O4Si	0.5	17181-37-2
O4P	0.5	14265-44-2
Ta	0.3	7440-25-7
Li	3.5	7439-93-2

RN 883122-10-9 HCAPLUS

CN Lithium tantalum phosphate silicate (Li_{3.4}Ta_{0.3}(PO₄)_{0.6}(SiO₄)_{0.4})
(9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O4Si	0.4	17181-37-2
O4P	0.6	14265-44-2
Ta	0.3	7440-25-7
Li	3.4	7439-93-2

CC 52-2 (Electrochemical, Radiational, and Thermal Energy
Technology)ST lithium transition metal phosphate battery **electrolyte**;
solid **electrolyte** lithium batteryIT Battery **electrolytes**(Group 13 and/or 14 element-contg. Li transition metal phosphate
solid oxide **electrolytes** for all-solid lithium
batteries)

IT Secondary batteries

(lithium; Group 13 and/or 14 element-contg. Li transition metal
phosphate solid oxide **electrolytes** for all-solid
lithium batteries)

IT 883121-02-6P, Lithium tungsten phosphate silicate
(Li_{3.5}W_{0.01}(PO₄)_{0.5}(SiO₄)_{0.5}) 883121-04-8P, Lithium
tungsten phosphate silicate (Li_{3.5}W_{0.05}(PO₄)_{0.5}(SiO₄)_{0.5})
883121-06-0P, Lithium tungsten phosphate silicate
(Li_{3.5}W_{0.1}(PO₄)_{0.5}(SiO₄)_{0.5}) 883121-08-2P, Lithium
tungsten phosphate silicate (Li_{3.5}W_{0.2}(PO₄)_{0.5}(SiO₄)_{0.5})
883121-10-6P, Lithium tungsten phosphate silicate
(Li_{3.5}W_{0.5}(PO₄)_{0.5}(SiO₄)_{0.5}) 883121-12-8P, Lithium
tungsten phosphate silicate (Li_{3.5}W_{0.52}(PO₄)_{0.5}(SiO₄)_{0.5})
883121-14-0P, Lithium tungsten phosphate silicate
(Li_{3.5}W_{0.6}(PO₄)_{0.5}(SiO₄)_{0.5}) 883121-16-2P, Lithium molybdenum
phosphate silicate (Li_{3.5}Mo_{0.2}(PO₄)_{0.5}(SiO₄)_{0.5})

883121-18-4P, Lithium tantalum phosphate silicate
 (Li_{3.5}Ta_{0.2}(PO₄)_{0.5}(SiO₄)_{0.5}) 883121-20-8P, Lithium tungsten
 borate phosphate (Li_{2.6}W_{0.2}(BO₂)_{0.2}(PO₄)_{0.8}) 883121-22-0P
 883121-24-2P, Gallium lithium tungsten oxide phosphate
 (Ga_{0.2}Li_{2.6}W_{0.2}O_{0.4}(PO₄)_{0.8}) 883121-26-4P, Lithium
 tungsten phosphate silicate (Li_{3.2}W_{0.2}(PO₄)_{0.8}(SiO₄)_{0.2})
 883121-28-6P 883121-30-0P, Lithium silicon tungsten oxide
 phosphate (Li_{2.97}Si_{0.01}W_{0.2}O_{0.02}(PO₄)_{0.99}) 883121-32-2P,
 Lithium silicon tungsten oxide phosphate
 (Li_{2.74}Si_{0.1}W_{0.2}O_{0.22}(PO₄)_{0.9}) 883121-34-4P
 883121-36-6P 883121-38-8P 883121-40-2P,
 Lithium silicon tungsten oxide phosphate
 (Li_{0.43}Si_{0.99}W_{0.2}O_{2.18}(PO₄)_{0.01}) 883121-42-4P, Lithium tungsten
 borate phosphate (Li_{2.98}W_{0.2}(BO₂)_{0.01}(PO₄)_{0.99}) 883121-44-6P,
 Boron lithium tungsten oxide phosphate (B_{0.1}Li_{2.75}W_{0.2}O_{0.18}(PO₄)_{0.9})
 883121-46-8P 883121-48-0P 883121-50-4P, Lithium phosphorus
 tungsten borate oxide (Li_{0.75}P_{0.1}W_{0.2}(BO₂)_{0.9}O_{0.18}) 883121-52-6P,
 Boron lithium tungsten oxide phosphate (B_{0.99}Li_{0.52}W_{0.2}O_{1.37}(PO₄)_{0.1}
) 883121-54-8P 883121-56-0P 883121-58-2P
 883121-60-6P 883121-62-8P 883121-64-0P
 883121-66-2P 883121-68-4P 883121-70-8P
 883121-72-0P 883121-74-2P 883121-76-4P
 883121-78-6P 883121-80-0P 883121-82-2P
 883121-84-4P 883121-86-6P 883121-94-6P,
 Lithium tungsten phosphate silicate (Li_{3.6}W_{0.3}(PO₄)_{0.4}(SiO₄)_{0.6})
 883121-96-8P, Lithium tungsten phosphate silicate
 (Li_{3.5}W_{0.3}(PO₄)_{0.5}(SiO₄)_{0.5}) 883121-98-0P, Lithium
 tungsten phosphate silicate (Li_{3.4}W_{0.3}(PO₄)_{0.6}(SiO₄)_{0.4})
 883122-00-7P, Lithium molybdenum phosphate silicate
 (Li_{3.6}Mo_{0.3}(PO₄)_{0.4}(SiO₄)_{0.6}) 883122-02-9P, Lithium molybdenum
 phosphate silicate (Li_{3.5}Mo_{0.3}(PO₄)_{0.5}(SiO₄)_{0.5}) 883122-04-1P,
 Lithium molybdenum phosphate silicate (Li_{3.4}Mo_{0.3}(PO₄)_{0.6}(SiO₄)_{0.4})
 883122-06-3P, Lithium tantalum phosphate silicate
 (Li_{3.6}Ta_{0.3}(PO₄)_{0.4}(SiO₄)_{0.6}) 883122-08-5P, Lithium
 tantalum phosphate silicate (Li_{3.5}Ta_{0.3}(PO₄)_{0.5}(SiO₄)_{0.5})
 883122-10-9P, Lithium tantalum phosphate silicate
 (Li_{3.4}Ta_{0.3}(PO₄)_{0.6}(SiO₄)_{0.4})
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM
 (Technical or engineered material use); PREP (Preparation); USES
 (Uses)

(Group 13 and/or 14 element-contg. Li transition metal phosphate
 solid oxide electrolytes for all-solid lithium
 batteries)

L21 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:103179 HCAPLUS

DOCUMENT NUMBER: 143:462944

TITLE: Application of silicotungstate lithium in
 polymer electrolyte

AUTHOR(S): Li, Zhao-hui; Su, Guang-yao; Gao, De-shu; Wang,
 Xia-yu; Li, Xiao-ping

CORPORATE SOURCE: College of Chemistry, Xiangtan University,
 Xiangtan Hunan, 411105, Peop. Rep. China

SOURCE: Dianyan Jishu (2004), 28(12), 743-747

CODEN: DIJIFT; ISSN: 1002-087X

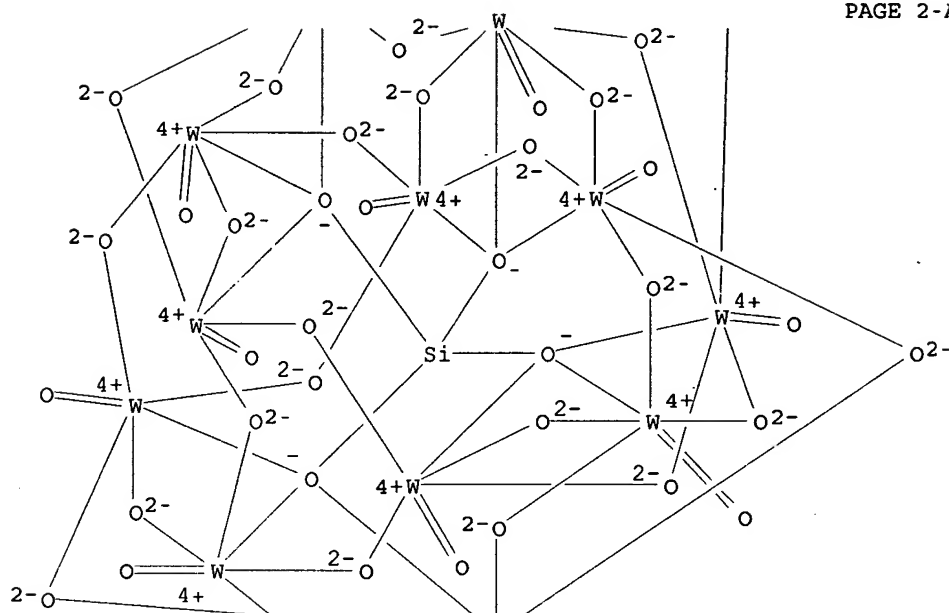
PUBLISHER: Dianyan Jishu Bianjibu

DOCUMENT TYPE: Journal

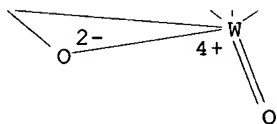
LANGUAGE: Chinese

AB The porous poly (vinylidene fluoride-co-hexafluoropropylene) [P(VDF-
 HFP)] membranes, which doped with various amts. of silicotungstate
 lithium (Li₄SiW₁₂O₄₀), were prepd. by liq.-liq. extn. in this paper.
 The polymer films possessed the ionic cond. of 10⁻⁴ S·cm⁻¹
 after absorbing propylene carbonate (PC). From the results of DSC
 anal. for polymer films, it was found that the crystallinity of them
 decreased with the increase of amt. of Li₄SiW₁₂O₄₀ doping polymer
 matrixes. The ionic cond. of polymer electrolytes equaled

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PAGE 3-A

●4 Li⁺

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 35, 49
 ST lithium silicotungstate polymer electrolyte
 IT Ionic conductivity
 Polymer electrolytes
 (application of lithium silicotungstate in polymer electrolyte)
 IT Heteropoly acids
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
 (salts; application of lithium silicotungstate in polymer electrolyte)
 IT 108-32-7, Propylene carbonate 9011-17-0 84259-22-3, Lithium tungstosilicate (Li₄SiW₁₂O₄₀)
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
 (application of lithium silicotungstate in polymer electrolyte)

L21 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:632469 HCAPLUS
 DOCUMENT NUMBER: 141:176832
 TITLE: Nonaqueous electrolyte lithium ion

secondary battery containing lithium-based composite metal oxide for improved discharge capacity and thermal stability

INVENTOR(S): Kubo, Koichi
 PATENT ASSIGNEE(S): Toshiba Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004220801	A2	20040805	JP 2003-3291	20030109
PRIORITY APPLN. INFO.: JP 2003-3291				20030109

AB Disclosed is the nonaq. **electrolyte** lithium ion secondary battery comprising (a) a pos. electrode contg. a metal oxide $\text{Li}_{2-x}\text{M}_1-y\text{M}'_y\text{XzAO}_4$ ($\text{M} = \text{Ti, Nb, etc.}; \text{M}' = \text{V, Cr, Mn, etc.}; \text{X} = \text{O, F}; \text{A} = \text{Si, Ge, P, S}; 0 \leq x \leq 2; 0 \leq y \leq 0.5; \text{and } 0.5 \leq z \leq 1.5$) having the tetragonal crystal structure, (b) a neg. electrode, and (c) a nonaq. **electrolyte**.

IT 732298-68-9, Lithium tungsten oxide silicate ($\text{Li}_2\text{WO}(\text{SiO}_4)$)
 RL: DEV (Device component use); USES (Uses)
 (pos. electrode of nonaq. **electrolyte** lithium ion secondary battery)

RN 732298-68-9 HCAPLUS

CN Lithium tungsten oxide silicate ($\text{Li}_2\text{WO}(\text{SiO}_4)$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
O4Si	1	17181-37-2
W	1	7440-33-7
Li	2	7439-93-2

IC ICM H01M004-58
 ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq **electrolyte** lithium ion secondary battery; metal oxide composite lithium

IT Secondary batteries
 (lithium; pos. electrode of nonaq. **electrolyte** lithium ion secondary battery)

IT Battery electrodes
 (pos. electrode of nonaq. **electrolyte** lithium ion secondary battery)

IT 530740-14-8, Molybdenum oxide phosphate ($\text{Mo}_2\text{O}_3(\text{PO}_4)_2$) 732298-51-0, Lithium molybdenum oxide phosphate ($\text{Li}_2\text{MoO}(\text{PO}_4)$) 732298-52-1, Lithium niobium oxide phosphate ($\text{Li}_2\text{NbO}(\text{PO}_4)$) 732298-53-2, Lithium tantalum oxide phosphate ($\text{Li}_2\text{TaO}(\text{PO}_4)$) 732298-54-3, Lithium tungsten oxide phosphate ($\text{Li}_2\text{WO}(\text{PO}_4)$) 732298-55-4, Iron lithium molybdenum oxide phosphate ($\text{Fe}_{0.33}\text{Li}_2\text{Mo}_{0.67}\text{O}(\text{PO}_4)$) 732298-56-5, Germanium lithium molybdenum oxide ($\text{GeLi}_2\text{MoO}_5$) 732298-58-7, 732298-59-8, Iron lithium tantalum fluoride phosphate ($\text{Fe}_{0.5}\text{Li}_2\text{Ta}_{0.5}\text{F}(\text{PO}_4)$) 732298-60-1 732298-61-2 732298-62-3 732298-63-4, Lithium titanium oxide sulfate ($\text{Li}_2\text{TiO}(\text{SO}_4)$) 732298-64-5, Lithium titanium vanadium oxide sulfate

(Li₂Ti_{0.5}V_{0.5}O(SO₄)) 732298-65-6, Lithium niobium vanadium oxide sulfate (Li₂Nb_{0.5}V_{0.5}O(SO₄)) 732298-66-7, Lithium molybdenum oxide phosphate (Li₂Mo_{0.5}(PO₄)) 732298-67-8, Lithium titanium oxide phosphate (Li₂Ti_{0.5}(PO₄)) 732298-68-9, Lithium tungsten oxide silicate (Li₂WO(SiO₄))

RL: DEV (Device component use); USES (Uses)
(pos. electrode of nonaq. electrolyte lithium ion secondary battery)

L21 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:143909 HCAPLUS

DOCUMENT NUMBER: 140:425989

TITLE: Syntheses and application of all-lithium salts of heteropolyacid as electrolyte of lithium-ion battery

AUTHOR(S): Chen, Ya-guang; Wang, Cun-guo; Zhang, Xi-yan; Xie, De-min; Wang, Rong-shun

CORPORATE SOURCE: Faculty of Chemistry, Northeast Normal University, Changchun, 130024, Peop. Rep. China

SOURCE: Chemical Research in Chinese Universities (2004), 20(1), 77-80

CODEN: CRCUED; ISSN: 1005-9040

PUBLISHER: Higher Education Press

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The all-lithium salts of heteropoly acid Li_xXM₁₂O₄₀ (HPA-Li) (X=P, Si; M=Mo, W) were obtained via ion exchange and characterized by means of IR and UV spectroscopies, TG and elemental analyses. The cond. of the electrolytic soln. consisting of Li₃PW₁₂O₄₀ and PC/DME mixing solvent (1/2.5, vol. ration) is up to 7.2×10⁻² S/cm, being higher than that of LiClO₄ as the electrolyte. The all-lithium salts were used as electrolytes in secondary lithium-ion batteries. The discharge capacity of the PAS/Li batteries with Li₃PW₁₂O₄₀ electrolyte solns. reaches to 148 (mA · h)/g and the cyclic life is up to 380 times; much better than those of commercialized products with LiClO₄ and LiAsF₆ as electrolytes.

IT 692729-69-4P

RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); PROC (Process); USES (Uses)

(of all-lithium salts of heteropolyacid as electrolyte of lithium-ion battery)

RN 692729-69-4 HCAPLUS

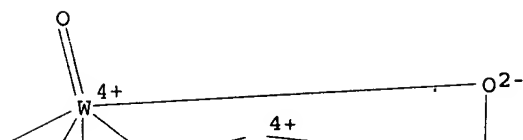
CN Tungstate(4-), [μ₁₂-[orthosilicato(4-)-

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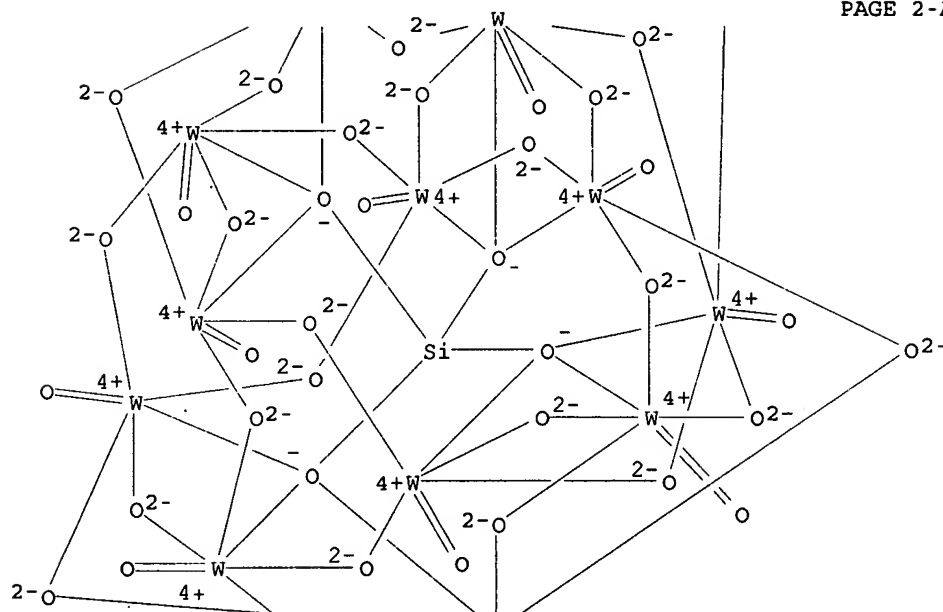
κO'':κO'':κO'':κO'':κO'']tetracosa-

μ-oxododecaoxododeca-, tetralithium, tridecahydrate (9CI) (CA INDEX NAME)

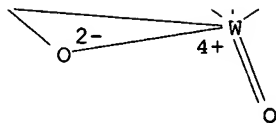
PAGE 1-A



PAGE 2-A



PAGE 3-A

●4 Li⁺●13 H₂O

- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 73, 76, 78
- ST lithium salt heteropolyacid **electrolyte** secondary battery
- IT Heteropoly acids
RL: NUU (Other use, unclassified); USES (Uses)
(lithium salts; syntheses and application of all-lithium salts of heteropolyacid as **electrolyte** of lithium-ion battery)
- IT Secondary batteries
(lithium; syntheses and application of all-lithium salts of heteropolyacid as **electrolyte** of lithium-ion battery)
- IT Electric conductivity
(of all-lithium salts of heteropolyacid as **electrolyte** of lithium-ion battery)
- IT Electric capacitance
(of lithium-ion battery with of all-lithium salts of heteropolyacid as **electrolyte** with PC/DME)
- IT **Electrolytes**
(syntheses and application of all-lithium salts of heteropolyacid as **electrolyte** of lithium-ion battery)
- IT Ion exchange
(syntheses of all-lithium salts of heteropolyacid as **electrolyte** of lithium-ion battery, by)
- IT Heteropoly acids
RL: NUU (Other use, unclassified); USES (Uses)
(tungstophosphoric, lithium salts; syntheses and application of all-lithium salts of heteropolyacid as **electrolyte** of lithium-ion battery)
- IT Heteropoly acids
RL: NUU (Other use, unclassified); USES (Uses)
(tungstosilicic, lithium salts; syntheses and application of all-lithium salts of heteropolyacid as **electrolyte** of lithium-ion battery)
- IT 692729-67-2P
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); PROC (Process); USES (Uses)
(all-lithium salts of heteropolyacid as **electrolyte** of lithium-ion battery, by)
- IT 108-32-7, Propylene carbonate 110-71-4
RL: NUU (Other use, unclassified); USES (Uses)
(elec. capacitance of lithium-ion battery with of all-lithium salts of heteropolyacid as **electrolyte** with PC/DME)
- IT 11104-88-4, Molybdophosphoric acid 11104-89-5, Molybdosilicic acid
RL: NUU (Other use, unclassified); USES (Uses)
(lithium salts; syntheses and application of all-lithium salts of heteropolyacid as **electrolyte** of lithium-ion battery)

IT 692729-69-4P 692729-71-8P 692729-72-9P
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP
(Physical, engineering or chemical process); PNU (Preparation,
unclassified); PRP (Properties); PREP (Preparation); PROC (Process);
USES (Uses)

(of all-lithium salts of heteropolyacid as electrolyte
of lithium-ion battery)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L21 ANSWER 5 OF 10 HCAPLUS. COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:413431 HCAPLUS

DOCUMENT NUMBER: 139:136001

TITLE: Lithium salts of heteropolyacid as the
electrolyte of lithium-ion battery

AUTHOR(S): Chen, Ya-Guang; Wang, Cun-Guo; Zhang, Xi-Yan;
Xie, De-Ming; Wang, Rong-Shun

CORPORATE SOURCE: Faculty of Chemistry, Northeast Normal
University, Changchun, 130024, Peop. Rep. China

SOURCE: Synthetic Metals (2003), 135-136, 225-226

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The lithium salts of heteropoly acids were prepd. by ion-exchange
method and characterized by IR and UV spectra and TG method. They
were used as electrolyte of lithium-ion batteries. The
discharge capacity and the cycle life of the batteries with
Li₃PW₁₂O₄₀.nH₂O and Li₄SiW₁₂O₄₀.nH₂O electrolytes were
obviously improved in comparison with that of battery with LiClO₄
electrolyte. The battery with Li₃PW₁₂O₄₀
electrolyte has a stronger ability of maintaining its
electricity capacity.

IT 86692-11-7P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic
preparation); PREP (Preparation); USES (Uses)

(lithium salts of heteropolyacid as electrolyte of
lithium-ion secondary battery)

RN 86692-11-7 HCAPLUS

CN Tungstate(4-), [μ₁₂-[orthosilicato(4-)-

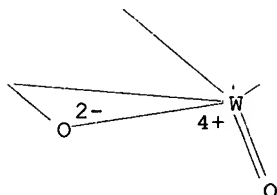
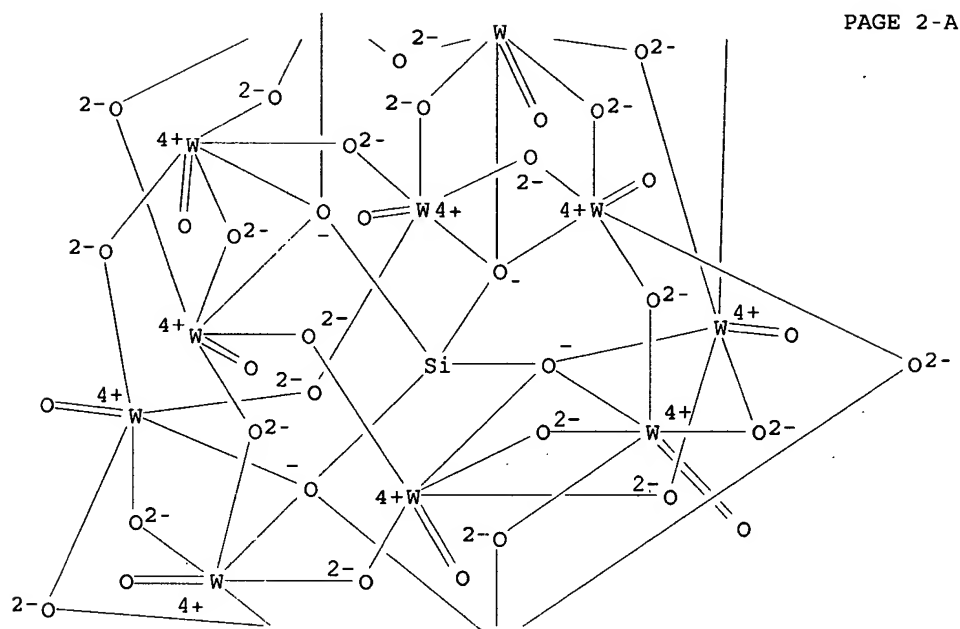
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κO'':κO'':κO'':κO'':κO'':κO'']tetracosa-

μ-oxododecaoxododeca-, tetralithium, hydrate (9CI) (CA INDEX

NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



●4 Li⁺

●x H₂O

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium heteropolyacid salt electrolyte ion secondary battery discharge capacity

IT Polyacenes
 RL: DEV (Device component use); USES (Uses)
 (PAS electrode composite with carbon black and PTFE; lithium salts of heteropolyacid as electrolyte of lithium-ion secondary battery)

IT Carbon black, uses
 RL: DEV (Device component use); USES (Uses)
 (PAS- electrode composite with PTFE and polyacene; lithium salts of heteropolyacid as electrolyte of lithium-ion secondary battery)

IT Fluoropolymers, uses
 RL: DEV (Device component use); USES (Uses)

(PAS- electrode composite with carbon black and polyacene;
lithium salts of heteropolyacid as **electrolyte** of
lithium-ion secondary battery)

IT Battery electrodes
Battery **electrolytes** /
Electric current-potential relationship
IR spectra
UV and visible spectra
(lithium salts of heteropolyacid as **electrolyte** of
lithium-ion secondary battery)

IT Secondary batteries
(lithium; lithium salts of heteropolyacid as **electrolyte**
of lithium-ion secondary battery)

IT Electric conductivity
(of PC/DME/heteropolyacid solns.; lithium salts of heteropolyacid
as **electrolyte** of lithium-ion secondary battery)

IT Heteropoly acids
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic
preparation); PREP (Preparation); USES (Uses)
(salts, lithium and potassium salts; lithium salts of
heteropolyacid as **electrolyte** of lithium-ion secondary
battery)

IT 9002-84-0, PTFE
RL: DEV (Device component use); USES (Uses)
(PAS- electrode composite with carbon black and polyacene;
lithium salts of heteropolyacid as **electrolyte** of
lithium-ion secondary battery)

IT 12363-31-4D, lithium salts, hydrated 12379-13-4D, lithium salts,
hydrated 12534-77-9D, lithium salts, hydrated 29935-35-1
50927-64-5D, lithium salts, hydrated
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**electrolyte** in PC/DME soln.; lithium salts of
heteropolyacid as **electrolyte** of lithium-ion secondary
battery)

IT 7791-03-9
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**electrolyte** soln. in PC/DME; lithium salts of
heteropolyacid as **electrolyte** of lithium-ion secondary
battery)

IT 108-32-7, Propylene carbonate 115-10-6, Dimethyl ether
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solvent; lithium salts of heteropolyacid
as **electrolyte** of lithium-ion secondary battery)

IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(foil electrode; lithium salts of heteropolyacid as
electrolyte of lithium-ion secondary battery)

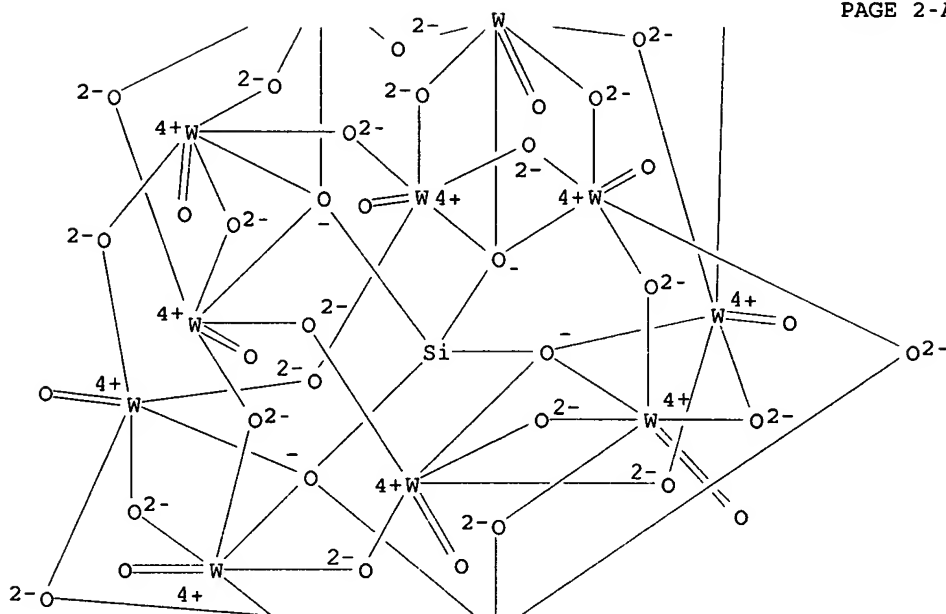
IT 86692-11-7P 99582-24-8P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic
preparation); PREP (Preparation); USES (Uses)
(lithium salts of heteropolyacid as **electrolyte** of
lithium-ion secondary battery)

IT 12027-46-2P 12207-66-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
RACT (Reactant or reagent)
(lithium salts of heteropolyacid as **electrolyte** of
lithium-ion secondary battery)

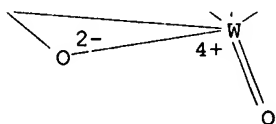
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L21 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:97870 HCAPLUS
DOCUMENT NUMBER: 138:156342
TITLE: Cationic conductive material for energy storage
devices

PAGE 2-A



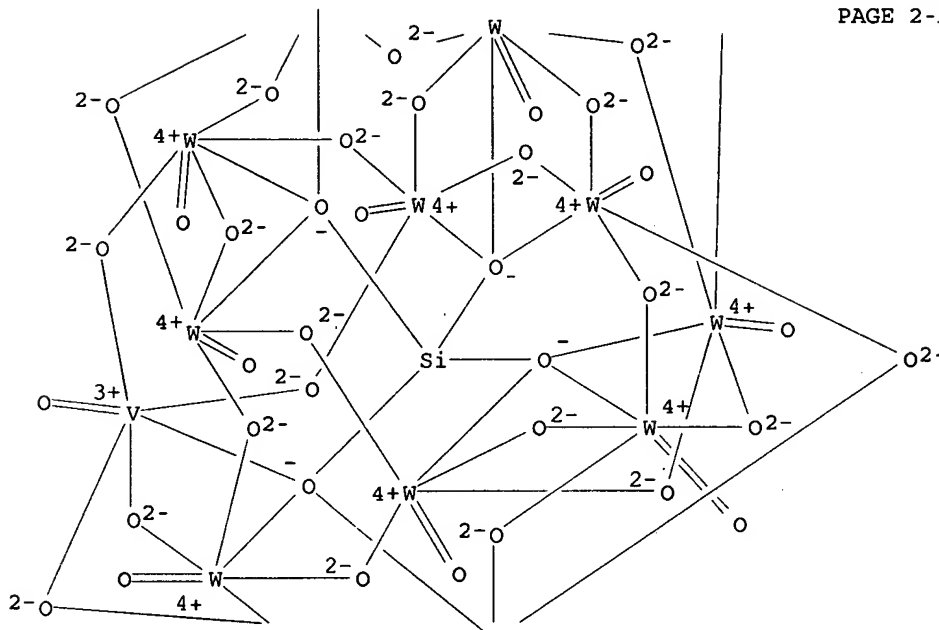
PAGE 3-A

●4 Li⁺

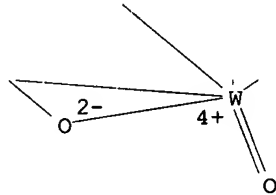
RN 93279-92-6 HCAPLUS
 CN Vanadate(5-), (eicosa-μ-oxoundeca-oxoundecatungstate) [μ12-
 [orthosilicato(4-)-κO:κO:κO:κO':κO':.k
 appa.O':κO':κO':κO':κO':κO':.ka
 ppa.O':.]]tetra-μ-oxoxo-, pentalithium (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

PAGE 2-A



PAGE 3-A

●5 Li⁺

IC ICM H01M010-36
 INCL 429304000; 429322000; 252062200
 CC 52-3 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 57, 76, 78
 IT 12026-95-8 82691-60-9 83084-35-9 84259-22-3
 93279-92-6 379686-96-1 379686-97-2
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (ionic cond. of)
 IT 12390-22-6P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (prepn. and reactions in prepn. of conductor electrolytes)
 IT 12027-38-2
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepn. of electrolyte from)
 IT 495406-46-7P
 RL: SPN (Synthetic preparation); TEM (Technical or engineered

material use); PREP (Preparation); USES (Uses)
(prepn. of **electrolyte** from)

- IT 78-10-4, Tetraethoxysilane 1310-65-2, Lithium hydroxide (LiOH)
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP
(Physical, engineering or chemical process); PROC (Process); USES
(Uses)
(reactions in prepn. of conductor **electrolytes**)
- IT 123-61-5 1643-19-2, Tetrabutylammonium bromide 7631-95-0, Sodium
molybdate (Na₂MoO₄)
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions in prepn. of conductor **electrolytes**)

L21 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:916776 HCAPLUS

DOCUMENT NUMBER: 138:323871

TITLE: A novel application of mixed-valence Keggin-type
polyoxometalates as non-aqueous
electrolytes in polyacenic semiconductor
secondary batteries

AUTHOR(S): Wang, Xiuli; Wang, Enbo; Xie, Demin; Zhang,
Xiyang; Hu, Changwen; Xu, Lin

CORPORATE SOURCE: Institute of Polyoxometalate Chemistry,
Department of Chemistry, Northeast Normal
University, Changchun, 130024, Peop. Rep. China

SOURCE: Solid State Ionics (2003), 156(1,2), 71-78
CODEN: SSIOD3; ISSN: 0167-2738

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Mixed-valence Keggin-type lithium polyoxometalates (POMs) were used
as the **electrolytes** of polyacenic semiconductor (PAS)
secondary batteries substituting for LiClO₄ for the first time. The
discharging, cycle and self-discharging properties of these PAS/Li
secondary batteries and the effect of c.d. and temp. on the
properties of the batteries have been investigated. The results
indicate not only that the lithium POMs can overcome the
disadvantages of LiClO₄, which is apt to explode when heated or
rammed, but also that some of the PAS/Li secondary batteries
assembled with the novel **electrolytes** have larger capacity
and smaller self-discharging than that assembled with LiClO₄.
Therefore, it is believed that Keggin-type mixed-valence lithium
POMs are novel and better **electrolytes** of PAS secondary
batteries and exhibit promising practical application.

IT 514202-38-1

RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**electrolytes**; novel application of mixed-valence
Keggin-type polyoxometalates as non-aq. **electrolytes** in
polyacenic semiconductor secondary batteries)

RN 514202-38-1 HCAPLUS

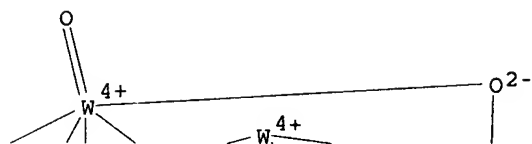
CN Tungstate(6-), [μ₁₂-[orthosilicato(4-)-

κO:κO:κO:κO':κO':κO':κO':

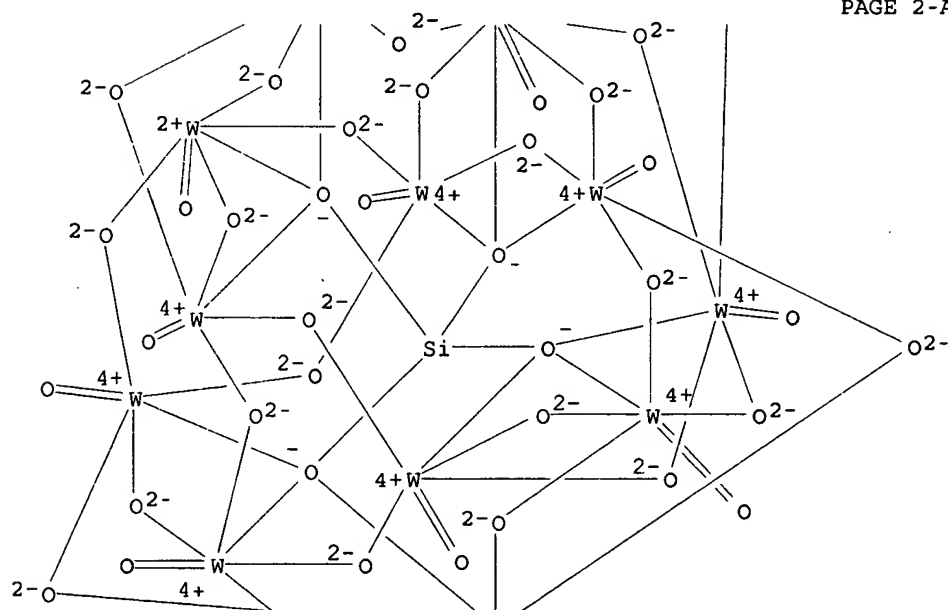
κO':κO':κO':κO':κO':κO']tetracosa-

μ-oxododecaoxododeca-, hexalithium (9CI) (CA INDEX NAME)

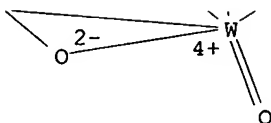
PAGE 1-A



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●6 Li+

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST lithium tungsten oxide phosphate **electrolyte** lithium battery; silicate lithium tungsten oxide **electrolyte** lithium battery; molybdenum lithium oxide phosphate silicate **electrolyte** lithium battery

IT Secondary batteries
(lithium; novel application of mixed-valence Keggin-type polyoxometalates as non-aq. **electrolytes** in polyacenic semiconductor secondary batteries)

IT Battery **electrolytes**
(novel application of mixed-valence Keggin-type polyoxometalates as non-aq. **electrolytes** in polyacenic semiconductor secondary batteries)

IT Heteropoly acids
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(novel application of mixed-valence Keggin-type polyoxometalates as non-aq. **electrolytes** in polyacenic semiconductor secondary batteries)

IT 514202-37-0 514202-38-1 514202-49-4
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**electrolytes**; novel application of mixed-valence Keggin-type polyoxometalates as non-aq. **electrolytes** in polyacenic semiconductor secondary batteries)

IT 514202-39-2, Lithium molybdenum oxide phosphate (Li5Mo12O36(PO4))
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(novel application of mixed-valence Keggin-type polyoxometalates as non-aq. **electrolytes** in polyacenic semiconductor secondary batteries)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:671907 HCAPLUS

DOCUMENT NUMBER: 136:40116

TITLE: Solid **electrolyte** for thin film energy storage devices

AUTHOR(S): Huang, Yuhong; Jiang, Gengwei; West, William; Hill, Craig

CORPORATE SOURCE: Chemat Technology, Inc., Northridge, CA, 91324, USA

SOURCE: Proceedings of the Intersociety Energy Conversion Engineering Conference (2001), 36th(Vol. 2), 887-889
CODEN: PIECDE; ISSN: 0146-955X

PUBLISHER: Society of Automotive Engineers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB There is a need for the development of solid-state micro power sources with both high power and high energy d. as a new type of power supply for advanced consumer electronics, MEMS, sensors, computer equipment and communication systems. To satisfy the

requirements of a compact and lightwt. power supply, thin film batteries are under consideration as candidates for the hybrid power sources. A novel solid electrolyte based on polyoxometalates has been studied for thin film energy storage devices. This class of nano-cluster materials show considerable potential in both proton and lithium ion solid electrolyte conductive coatings. A spin-on thin film deposition process was developed in this research.

IT 84259-22-3, Lithium tungstosilicate li4siw12o40

93279-92-6

RL: DEV (Device component use); USES (Uses)
(solid electrolyte for thin film energy storage devices)

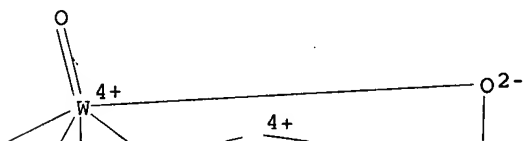
RN 84259-22-3 HCAPLUS

CN Tungstate(4-), [μ12-[orthosilicato(4)-

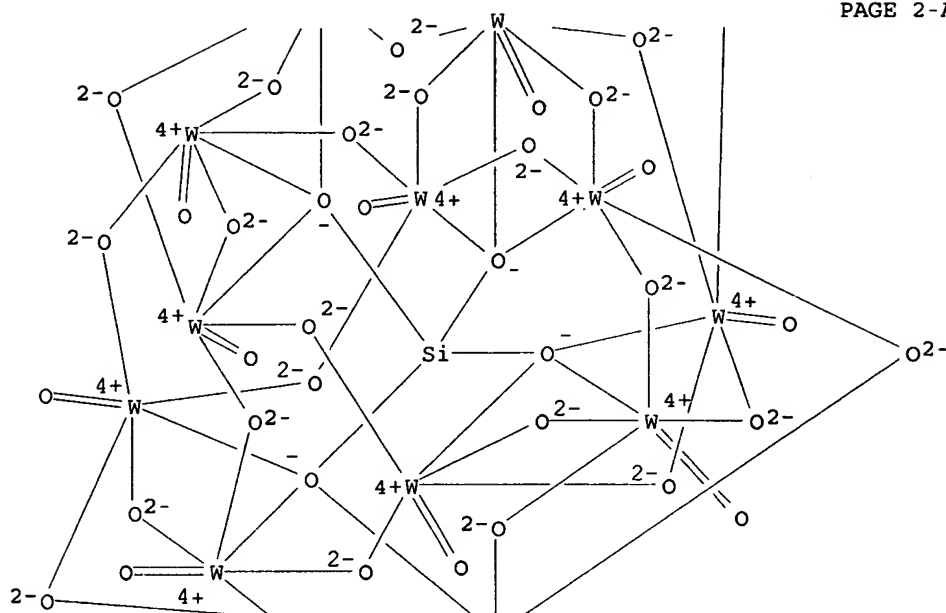
$$\kappa_0 : \kappa_0 : \kappa_0 : \kappa_0' : \kappa_0' : \kappa_0' : \kappa_0' :$$
 $\kappa O''':\kappa O''':\kappa O''':\kappa O''':\kappa O''']]$ tetracos-

μ -oxododecaoxododeca-, tetralithium (9CI) (CA INDEX NAME)

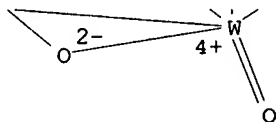
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PAGE 2-A

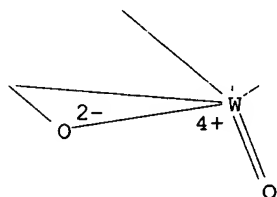
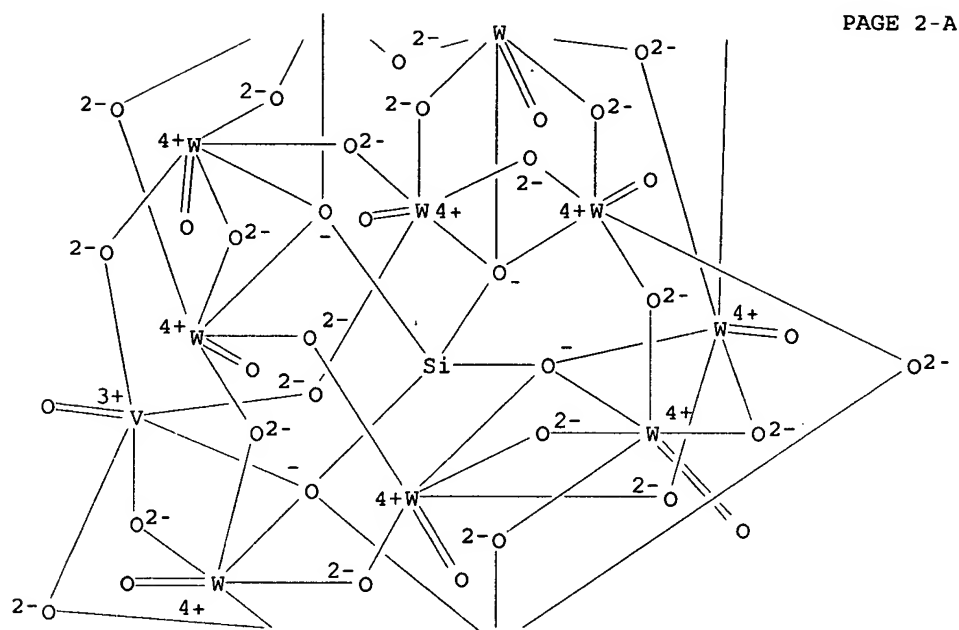


PAGE 3-A

● 4 Li⁺

RN 93279-92-6 HCAPLUS
 CN Vanadate(5-), (eicosa-μ-oxoundeca-oxoundecatungstate) [μ12-
 [orthosilicato(4-)-κO:κO:κO:κO':κO':.k
 appa.O':κO':κO':κO':κO':κO':.ka
 ppa.O''']]tetra-μ-oxoxo-, pentalithium (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *



●5 Li⁺

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 72
 ST solid **electrolyte** polyoxometalate film lithium battery
 IT Heteropoly acids
 RL: DEV (Device component use); USES (Uses)
 (lithium salts; solid **electrolyte** for thin film energy storage devices)
 IT Ionic conductivity
 (solid **electrolyte** for thin film energy storage devices)
 IT Battery **electrolytes**
 (solid; solid **electrolyte** for thin film energy storage devices)
 IT Coating process
 (spin; solid **electrolyte** for thin film energy storage devices)
 IT 12026-95-8, Lithium tungstophosphate li3pw12o40 82691-60-9
 83084-35-9 84259-22-3, Lithium tungstosilicate li4siw12o40
 93279-92-6 138597-47-4 379686-96-1 379686-97-2
 RL: DEV (Device component use); USES (Uses)

(solid electrolyte for thin film energy storage devices)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:196425 HCAPLUS

DOCUMENT NUMBER: 132:285378

TITLE: Role of Cation Size in the Energy of Electron Transfer to 1:1 Polyoxometalate Ion Pairs $\{(M^+)(X_n+VW11O40)\}(8-n)^-$ (M = Li, Na, K)
AUTHOR(S): Grigoriev, Vladimir A.; Hill, Craig L.; Weinstock, Ira A.

CORPORATE SOURCE: Department of Chemistry, Emory University, Atlanta, GA, 30322, USA

SOURCE: Journal of the American Chemical Society (2000), 122(14), 3544-3545

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB By carefully controlling polyoxometalates (POM) size, structure and charge, temp., buffer and electrolyte compn., and concn. as series of 1:1 assocn. complexes were prepd. between alkali metal cations (Li⁺, Na⁺, and K⁺) and three representative vanadium(V)-substituted α -Keggin heteropolytungstates $\alpha-(X_n+VW11O40)(9-n)^-$ (X = P(V), Si(IV), and Al(III)). Formal 1e⁻ redn. potentials are assigned. to specific 1:1 ion pairs.

IT 263756-29-2

RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent)

(formation and effective hydrodynamic radii and redn. potential in aq. tert-Bu alc.: role of cation size in energy of electron transfer to 1:1 polyoxometalate ion pairs)

RN 263756-29-2 HCAPLUS

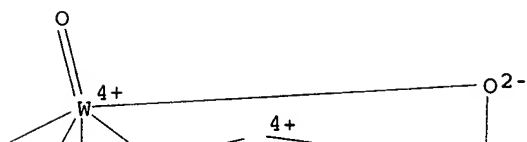
CN Vanadate(5-), (eicosa- μ -oxoundeca-oxoundecatungstate) [μ 12-

[orthosilicato(4-)- κ O: κ O: κ O: κ O': κ O':.k

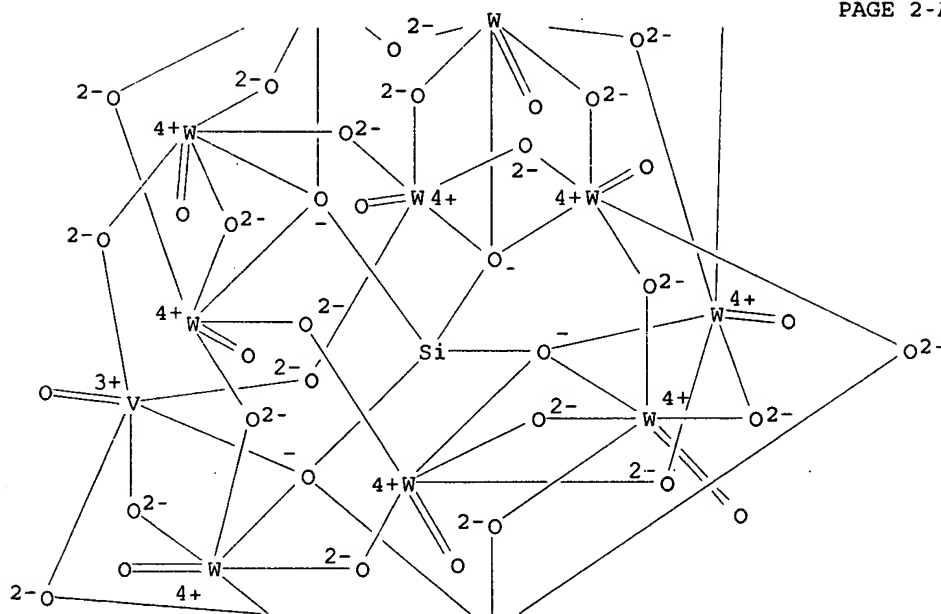
appa.O': κ O': κ O': κ O': κ O': κ O':.ka

ppa.O''']]tetra- μ -oxooxo-, monolithium (9CI) (CA INDEX NAME)

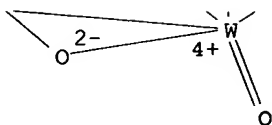
PAGE 1-A



PAGE 2-A



PAGE 3-A

● Li⁺

CC 72-2 (Electrochemistry)

Section cross-reference(s): 67, 68, 78

IT 263756-24-7 263756-26-9 263756-28-1 263756-29-2
 263756-31-6 263756-33-8 263756-35-0 263756-37-2 263756-39-4
 RL: FMU (Formation, unclassified); PEP (Physical, engineering or
 chemical process); PRP (Properties); RCT (Reactant); FORM
 (Formation, nonpreparative); PROC (Process); RACT (Reactant or
 reagent)

(formation and effective hydrodynamic radii and redn. potential
 in aq. tert-Bu alc.: role of cation size in energy of electron
 transfer to 1:1 polyoxometalate ion pairs)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L21 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:659663 HCAPLUS

DOCUMENT NUMBER: 121:259663

TITLE: Secondary nonaqueous-electrolyte
 battery and its manufacture

INVENTOR(S): Iwasaki, Fumiharu; Yahagi, Seiji; Sakata,
 Akifumi; Chinone, Kazuo; Ishikawa, Hideki;
 Sakai, Tsugio; Tahara, Kensuke

PATENT ASSIGNEE(S): Seiko Instruments Inc., Japan; Seiko Electronic
 Components Ltd.

SOURCE: Eur. Pat. Appl., 22 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 615296	A1	19940914	EP 1994-301699	19940310
EP 615296	B1	19980128		
R: DE, FR, GB				
JP 07230800	A2	19950829	JP 1994-6023	19940124
JP 3010226	B2	20000221		
JP 2000077075	A2	20000314	JP 1999-270950	19940124
JP 2000082459	A2	20000321	JP 1999-270949	19940124
US 5506075	A	19960409	US 1994-205948	19940303

PRIORITY APPLN. INFO.: JP 1993-49716 A 19930310

JP 1993-80944 A 19930407

JP 1993-83682 A 19930409

JP 1993-328379 A 19931224

JP 1994-6023 A 19940124

AB The battery comprises ≥ 1 anode, a cathode, and a nonaq. electrolyte with Li ion cond., wherein a composite oxide $\text{Li}_x\text{Si}_y\text{M}_z\text{O}_w$ is used as an active material of the anode, where M represents ≥ 1 oxide-forming element other than alkali metals and Si (e.g., Ti, W, Mn, Fe, Ni, B, Sn, or Pb) $0 < x$, $0 < y < 1$, and $0 < z < 2$. The battery has an enhanced high current charge and discharge characteristic with a high voltage and high energy d. but with less deterioration due to overcharge and overdischarge, and also has a long service life.

IT 158710-01-1, Lithium silicon tungsten oxide ($\text{LiO}-1\text{SiO}_2.9\text{WO}_3.1\text{O}_2$)
 RL: DEV (Device component use); USES (Uses)
 (anodes for lithium nonaq.-electrolyte batteries)

RN 158710-01-1 HCAPLUS

CN Lithium silicon tungsten oxide ($\text{LiO}-1\text{SiO}_2.9\text{WO}_3.1\text{O}_2$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.1	17778-80-2
W	0.1	7440-33-7
Si	0.9	7440-21-3
Li	0 - 1	7439-93-2

IC ICM H01M004-48
 ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium nonaq electrolyte battery anode; titanium silicon oxide battery anode; tungsten silicon oxide battery anode; manganese silicon oxide battery anode; iron silicon oxide battery anode; nickel silicon oxide battery anode; boron silicon oxide battery anode; tin silicon oxide battery anode; lead silicon oxide battery anode

IT Batteries, secondary
 (nonaq.-electrolyte lithium)

IT 39302-36-8, Lithium silicon titanium oxide 158710-01-1, Lithium silicon tungsten oxide ($\text{LiO}-1\text{SiO}_2.9\text{WO}_3.1\text{O}_2$) 158710-02-2, Lithium silicon tin oxide ($\text{LiO}-1\text{SiO}_2-1\text{SnO}_2$) 158710-03-3, Lead lithium silicon oxide ($\text{PbO}-1\text{LiO}-1\text{SiO}_2$) 158710-04-4, Lithium silicon borate oxide ($\text{LiO}-1\text{SiO}_2.25-1(\text{BO}_2)_0-0.75\text{O}_2$) 158710-05-5, Lithium manganese silicon oxide ($\text{LiO}-1\text{MnO}_2-0.75\text{SiO}_2-1\text{O}_2$)
 RL: DEV (Device component use); USES (Uses)
 (anodes for lithium nonaq.-electrolyte batteries)

IT 158697-57-5, Silicon tungsten oxide (Si0.9W0.1O1.1) 158697-58-6,
Silicon tin oxide (Si0.9Sn0.1O) 158697-59-7, Lead silicon oxide
(Pb0.1Si0.9O) 158697-60-0, Silicon borate oxide
(Si0.9(BO3)0.1O0.75) 158697-61-1, Manganese silicon oxide
(Mn0.5Si0.5O) 158697-62-2, Silicon titanium oxide (Si0.75Ti0.25O)
158697-63-3, Silicon titanium oxide (Si0.5Ti0.5O) 158697-64-4,
Silicon titanium oxide (Si0.25Ti0.75O)
RL: DEV (Device component use); USES (Uses)
(anodes for lithium nonaq.-electrolyte batteries from
lithiated)

=> file reg

FILE 'REGISTRY' ENTERED AT 13:31:01 ON 31 AUG 2006
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L3 7 SEA FILE=REGISTRY ABB=ON PLU=ON LI2O/MF
L4 48 SEA FILE=REGISTRY ABB=ON PLU=ON O2SI/MF
L5 29 SEA FILE=REGISTRY ABB=ON PLU=ON N2/MF
L6 4 SEA FILE=REGISTRY ABB=ON PLU=ON NB2O5/MF
L7 4 SEA FILE=REGISTRY ABB=ON PLU=ON O5TA/MF
L8 15 SEA FILE=REGISTRY ABB=ON PLU=ON O3W/MF
L9 19 SEA FILE=HCAPLUS ABB=ON PLU=ON (L3 OR LITHIUM OXIDE OR
LI2O OR DILITHIUM OXIDE) AND (L4 OR SILICA OR SILICON
OXIDE OR SI02) AND (L5 AND NITROGEN OR N2) AND (L6 OR
NIOBIUM OXIDE OR NIOBIUM PENTOXIDE OR L7 OR TANTALUM
OXIDE OR TA2O5 OR L8 OR TUNGSTEN OXIDE OR WO3)
L10 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 (L) ELECTROLYT?
L11 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 AND ELECTROLYT?
L12 7 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 AND ELECTROCHEM?/SC,S
X
L13 7 SEA FILE=HCAPLUS ABB=ON PLU=ON L10 OR L11 OR L12

=> file hcaplus

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=> d l13 1-7 ibib abs hitstr hitind

L13 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1221318 HCAPLUS
DOCUMENT NUMBER: 143:479882
TITLE: Novel proton conducting materials and devices
incorporating them
INVENTOR(S): Berland, Brian S.; Gade, Sabina; Schaller,
Ronald W.; Schwartz, Michael
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 9 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2005252853

A1

20051117

US 2004-844830

200405

13

PRIORITY APPLN. INFO.:

US 2004-844830

200405

13

AB Materials for use in proton transport characterized by several formulas are disclosed. Mixed ion and electron conductors may include metals and/or ceramic electron conductors and a proton conducting material. Hydrogen sepn. membranes may include porous layers and an **electrolyte** layer including a proton conducting material and an electron conductor. Hydrogen sepn. membranes may be formed by thermal spray techniques. Hydrogen sepn. membranes may include a catalyst layer. A method of sepg. hydrogen from a mixed gas stream includes passing the mixed gas through a 1st porous layer to an **electrolyte** layer, disassoc. protons and electrons, diffusing the protons and electrons through the **electrolyte** layer, recombining them, and passing mol. hydrogen through a 2nd porous layer.

IT 7727-37-9, **Nitrogen**, processes

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(novel proton conducting materials and devices incorporating them, such as hydrogen sepn. membranes)

RN 7727-37-9 HCAPLUS

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)



IC ICM B01D071-00

INCL 210500250; 502302000

CC 48-1 (Unit Operations and Processes)

Section cross-reference(s): 57, 72, 76

IT Calcination

Ceramic membranes

Electric conductors

Electrolytes

Gelation

Porous materials

(novel proton conducting materials and devices incorporating them, such as hydrogen sepn. membranes)

IT 124-38-9, Carbon dioxide, processes 7727-37-9,

Nitrogen, processes

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(novel proton conducting materials and devices incorporating them, such as hydrogen sepn. membranes)

IT 7429-90-5D, Aluminum, oxides contg. 7429-91-6D, Dysprosium, oxides contg. 7439-88-5D, Iridium, oxides contg. 7439-89-6D, Iron, oxides contg. 7439-91-0D, Lanthanum, oxides contg. 7439-92-1D, Lead, oxides contg. 7439-93-2D, **Lithium**, oxides contg. 7439-94-3D, Lutetium, oxides contg. 7439-95-4D, Magnesium, oxides contg. 7439-96-5D, Manganese, oxides contg. 7439-97-6D, Mercury, oxides contg. 7439-98-7D, Molybdenum, oxides contg. 7440-00-8D, Neodymium, oxides contg. 7440-02-0D, Nickel, oxides contg. 7440-03-1D, **Niobium**, oxides contg. 7440-04-2D, Osmium, oxides contg. 7440-05-3D, Palladium, oxides contg. 7440-06-4D, Platinum, oxides contg. 7440-09-7D,

Potassium, oxides contg. 7440-10-0D, Praseodymium, oxides contg.
 7440-12-2D, Promethium, oxides contg. 7440-14-4D, Radium, oxides
 contg. 7440-15-5D, Rhenium, oxides contg. 7440-16-6D, Rhodium,
 oxides contg. 7440-17-7D, Rubidium, oxides contg. 7440-18-8D,
 Ruthenium, oxides contg. 7440-19-9D, Samarium, oxides contg.
 7440-20-2D, Scandium, oxides contg. 7440-21-3D, Silicon,
 oxides contg. 7440-22-4D, Silver, oxides contg.
 7440-23-5D, Sodium, oxides contg. 7440-24-6D, Strontium, oxides
 contg. 7440-25-7D, Tantalum, oxides contg.
 7440-26-8D, Technetium, oxides contg. 7440-29-1D, Thorium, oxides
 contg. 7440-30-4D, Thulium, oxides contg. 7440-31-5D, Tin,
 oxides contg. 7440-32-6D, Titanium, oxides contg. 7440-33-7D,
 Tungsten, oxides contg. 7440-39-3D, Barium,
 oxides contg. 7440-41-7D, Beryllium, oxides contg. 7440-42-8D,
 Boron, oxides contg. 7440-43-9D, Cadmium, oxides contg.
 7440-44-0D, Carbon, oxides contg. 7440-45-1D, Cerium, oxides
 contg. 7440-46-2D, Cesium, oxides contg. 7440-47-3D, Chromium,
 oxides contg. 7440-48-4D, Cobalt, oxides contg. 7440-50-8D,
 Copper, oxides contg. 7440-52-0D, Erbium, oxides contg.
 7440-53-1D, Europium, oxides contg. 7440-54-2D, Gadolinium, oxides
 contg. 7440-55-3D, Gallium, oxides contg. 7440-56-4D, Germanium,
 oxides contg. 7440-57-5D, Gold, oxides contg. 7440-58-6D,
 Hafnium, oxides contg. 7440-60-0D, Holmium, oxides contg.
 7440-62-2D, Vanadium, oxides contg. 7440-64-4D, Ytterbium, oxides
 contg. 7440-65-5D, Yttrium, oxides contg. 7440-66-6D, Zinc,
 oxides contg. 7440-67-7D, Zirconium, oxides contg. 7440-70-2D,
 Calcium, oxides contg. 7440-73-5D, Francium, oxides contg.
 7440-74-6D, Indium, oxides contg.

RL: TEM (Technical or engineered material use); USES (Uses)
 (novel proton conducting materials and devices incorporating
 them, such such as hydrogen sepn. membranes)

L13 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:650241 HCAPLUS
 DOCUMENT NUMBER: 141:194503
 TITLE: Artificial dielectric systems and devices with
 sintered ceramic matrix material
 INVENTOR(S): Dalton, Robert C.
 PATENT ASSIGNEE(S): USA
 SOURCE: PCT Int. Appl., 121 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004068549	A2	20040812	WO 2004-US2061	20040126
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI				
EP 1639625	A2	20060329	EP 2004-705273	20040126
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			US 2003-351685	A
				20030127

WO 2004-US2061

W

200401

26

AB An electromagnetic susceptor for chem. processing having a matrix material that surrounds a non-matrix material that is made from a material that is different from the matrix material, the matrix material is constructed of a sintered ceramic material having lower dielec. losses compared to the non-matrix material, the non-matrix material initially absorbs electromagnetic energy applied to the electromagnetic susceptor to a greater extent than the matrix material, and the non-matrix material produces subsequent heat in the matrix material. This present invention, in its broadest sense, is an improved design that will produce a more homogeneous distribution of energy by: (1) the design of the cavity geometry; (2) the location of the applied energy sources; and (3) the depth of penetration of the susceptor. The device employs: (1) alternate cavity and susceptor geometries for providing more homogeneous interactions of applied electromagnetic energy in the vol. of the susceptor regardless of the flow rate and diam. of the exhaust duct width; (2) heat transfer methods to improve the overall heat efficiency of the device; (3) a susceptor structure that has reflectivity as principle mode of interaction with applied electromagnetic energy, which allows for energy to penetrate a susceptor; (4) composite susceptor materials; (5) a simple method of controlling the temp. vs. energy concn. in the susceptor; and (6) field concentrators to conc. the energy d. of the applied electromagnetic energy. In this invention, the penetration depth of the susceptor can be used to provide for the destruction of pollutants or reaction of gases by either (1) a method that primarily produces heat for thermal treatment; (2) a method that primarily uses the applied electromagnetic energy for interaction with gaseous/particulate species for chem. reaction or destruction of pollutants; (3) a method that produces fluorescent radiation; (4) a method that produces thermoluminescent radiation; (5) a method that produces scattering of the applied electromagnetic energy for concg. the applied energy; or (6) a combination of these five methods.

IT 12057-24-8, Lithium oxide, uses

RL: DEV (Device component use); USES (Uses)
(alone or coupled with CuO, CuO₂ or MnO₂; artificial dielec. systems and electromagnetic susceptor devices with sintered ceramic matrix material for gas treatment or promotion of reactions)

RN 12057-24-8 HCAPLUS

CN Lithium oxide (Li₂O) (8CI, 9CI) (CA INDEX NAME)

Li-O-Li

IT 15468-32-3, Tridymite (SiO₂) 99439-28-8, β-Quartz,

RL: DEV (Device component use); USES (Uses)
(as cryst.-phase matrix material; artificial dielec. systems and electromagnetic susceptor devices with sintered ceramic matrix material for gas treatment or promotion of reactions)

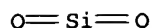
RN 15468-32-3 HCAPLUS

CN Tridymite (SiO₂) (9CI) (CA INDEX NAME)

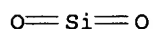
O=Si=O

RN 99439-28-8 HCAPLUS

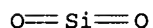
CN Quartz-beta (SiO2) (9CI) (CA INDEX NAME)



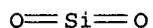
IT 14808-60-7, Quartz, uses
RL: DEV (Device component use); USES (Uses)
(as matrix or non-matrix material; artificial dielec. systems and
electromagnetic susceptor devices with sintered ceramic matrix
material for gas treatment or promotion of reactions)
RN 14808-60-7 HCAPLUS
CN Quartz (SiO2) (9CI) (CA INDEX NAME)



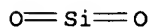
IT 99493-54-6, Tridymite-beta (SiO2)
RL: DEV (Device component use); USES (Uses)
(beta' and beta'' forms, as cryst.-phase matrix material;
artificial dielec. systems and electromagnetic susceptor devices
with sintered ceramic matrix material for gas treatment or
promotion of reactions)
RN 99493-54-6 HCAPLUS
CN Tridymite-beta (SiO2) (9CI) (CA INDEX NAME)



IT 7631-86-9, Silica, uses
RL: DEV (Device component use); USES (Uses)
(including amorphous, as matrix material, or cryst. form as
non-matrix material; artificial dielec. systems and
electromagnetic susceptor devices with sintered ceramic matrix
material for gas treatment or promotion of reactions)
RN 7631-86-9 HCAPLUS
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 14464-46-1, Crystobalite
RL: DEV (Device component use); USES (Uses)
(α - or β -, as cryst.-phase matrix material; artificial
dielec. systems and electromagnetic susceptor devices with
sintered ceramic matrix material for gas treatment or promotion
of reactions)
RN 14464-46-1 HCAPLUS
CN Cristobalite (SiO2) (9CI) (CA INDEX NAME)



IC ICM H01L
CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 52, 63, 73, 75
IT 12057-24-8, Lithium oxide, uses
RL: DEV (Device component use); USES (Uses)
(alone or coupled with CuO, CuO2 or MnO2; artificial dielec.
systems and electromagnetic susceptor devices with sintered
ceramic matrix material for gas treatment or promotion of
reactions)

- IT 1302-54-1, Anorthite 1302-88-1, Cordierite 1302-93-8, Mullite
12141-45-6, Sillimanite 12244-10-9, Albite, 12251-43-3,
Microcline 12251-44-4, Orthoclase 13983-17-0, Wollastonite
14654-06-9, Clino-enstatite 15468-32-3, Tridymite (SiO₂)
15593-90-5, Metasilicate 17181-37-2, Orthosilicate 20617-83-8,
Pyrosilicate 99439-28-8, β -Quartz,
RL: DEV (Device component use); USES (Uses)
(as cryst.-phase matrix material; artificial dielec. systems and
electromagnetic susceptor devices with sintered ceramic matrix
material for gas treatment or promotion of reactions)
- IT 9002-84-0, Polytetrafluoroethylene 9002-88-4, Polyethylene
9003-07-0, Polypropylene 9003-53-6, Polystyrene 14808-60-7
, Quartz, uses
RL: DEV (Device component use); USES (Uses)
(as matrix or non-matrix material; artificial dielec. systems and
electromagnetic susceptor devices with sintered ceramic matrix
material for gas treatment or promotion of reactions)
- IT 409-21-2, Silicon carbide, uses 1307-96-6, Cobalt oxide coo, uses
1314-13-2, Zinc oxide, uses 1317-37-9, Ferrous sulfide
1317-40-4, Cupric sulfide 1317-61-9, Iron oxide fe₃o₄, uses
1317-70-0, Anatase 1344-54-3, Titanium oxide ti₂o₃ 1345-25-1,
Ferrous oxide, uses 3812-32-6, Carbonate, uses 7429-90-5D,
Aluminum, metal compds. with 7440-02-0, Nickel, uses 7440-44-0,
Carbons, uses 7440-48-4, Cobalt, uses 7440-66-6D, Zinc, compd.
with oxygen, non-stoichiometric 7440-67-7D, Zirconium, compd. with
oxygen, non-stoichiometric 7782-42-5, Graphite, uses 11130-73-7,
Tungsten carbide 11148-32-6 12017-01-5, Cobalt titanate cotio₃
12022-71-8, Iron titanate fetio₃ 12031-63-9, Lithium
niobium oxide linbo₃ 12032-30-3, Magnesium
titanate 12032-74-5, Manganese titanate mntio₃ 12035-39-1,
Nickel titanate 12070-08-5, Titanium carbide 12137-20-1,
Titanium oxide tio 12163-56-3, Manganese oxide mn₂o₅ 12653-76-8,
Nickel titanium oxide 12789-64-9, Iron titanium oxide
37247-93-1, Cobalt titanium oxide 39318-31-5, Magnesium titanium
oxide 54990-20-4, Manganese titanium oxide 136512-99-7, Titanium
carbide (TiC₀-1) 737008-13-8, Carbon titanium oxide
RL: DEV (Device component use); USES (Uses)
(as non-matrix material; artificial dielec. systems and
electromagnetic susceptor devices with sintered ceramic matrix
material for gas treatment or promotion of reactions)
- IT 99493-54-6, Tridymite-beta (SiO₂)
RL: DEV (Device component use); USES (Uses)
(beta' and beta'' forms, as cryst.-phase matrix material;
artificial dielec. systems and electromagnetic susceptor devices
with sintered ceramic matrix material for gas treatment or
promotion of reactions)
- IT 7631-86-9, Silica, uses
RL: DEV (Device component use); USES (Uses)
(including amorphous, as matrix material, or cryst. form as
non-matrix material; artificial dielec. systems and
electromagnetic susceptor devices with sintered ceramic matrix
material for gas treatment or promotion of reactions)
- IT 10102-44-0, Nitrogen dioxide, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); REM (Removal or disposal); PROC (Process)
(redn. to N₂ or NO; artificial dielec. systems and
electromagnetic susceptor devices with sintered ceramic matrix
material for gas treatment or promotion of reactions)
- IT 11104-93-1, Nitrogen oxide, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); REM (Removal or disposal); PROC (Process)
(redn. to N₂, including in presence of hydrocarbons,
ammonia or ammonium-contg. compds.; artificial dielec. systems
and electromagnetic susceptor devices with sintered ceramic
matrix material for gas treatment or promotion of reactions)
- IT 14464-46-1, Cristobalite

RL: DEV (Device component use); USES (Uses)
 (α - or β -, as cryst.-phase matrix material; artificial
 dielec. systems and electromagnetic susceptor devices with
 sintered ceramic matrix material for gas treatment or promotion
 of reactions)

L13 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:430509 HCAPLUS

DOCUMENT NUMBER: 140:426100

TITLE: Solid electrolyte for battery

INVENTOR(S): Park, Young-sin; Lee, Seok-soo; Jin, Young-gu

PATENT ASSIGNEE(S): Samsung Electronics Co., Ltd., S. Korea

SOURCE: U.S. Pat. Appl. Publ., 7 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004101761	A1	20040527	US 2003-656180	20030908
KR 2004046433	A	20040605	KR 2002-74362	20021127
EP 1427042	A1	20040609	EP 2003-255187	20030821
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004179161	A2	20040624	JP 2003-387552	20031118
PRIORITY APPLN. INFO.:				20021127
				KR 2002-74362 A

AB A solid electrolyte, a method of manufg. the same, and a lithium battery and a thin-film battery that employ the solid electrolyte are provided. The solid electrolyte contains nitrogen to enhance the ionic cond. and electrochem. stability of batteries.

IT 1313-96-8, Niobium oxide (Nb₂O₅)
 1314-35-8, Tungsten oxide (WO₃)
), processes 7631-86-9, Silica, processes
 12057-24-8, Lithium oxide (Li₂O)
), processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (solid electrolyte for battery)

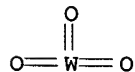
RN 1313-96-8 HCAPLUS

CN Niobium oxide (Nb₂O₅) (8CI, 9CI) (CA INDEX NAME)

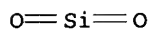
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1314-35-8 HCAPLUS

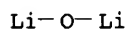
CN Tungsten oxide (WO₃) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI; 8CI, 9CI) (CA INDEX NAME)



RN 12057-24-8 HCAPLUS
 CN Lithium oxide (Li2O) (8CI, 9CI) (CA INDEX NAME)



IT 7727-37-9, Nitrogen, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (solid electrolyte for battery)
 RN 7727-37-9 HCAPLUS
 CN Nitrogen (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M006-18
 ICS C04B035-00
 INCL 429322000; 501096100; 501096500
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST battery solid electrolyte
 IT Vapor deposition process
 (chem.; solid electrolyte for battery)
 IT Electron beams
 (deposition by; solid electrolyte for battery)
 IT Ion beams
 (deposition ny; solid electrolyte for battery)
 IT Secondary batteries
 (lithium; solid electrolyte for battery)
 IT Battery electrolytes
 Sputtering
 (solid electrolyte for battery)
 IT 1313-96-8, Niobium oxide (Nb2O5)
 1314-35-8, Tungsten oxide (WO3)
), processes 1314-61-0, Tantalum oxide (Ta2O5) 7631-86-9, Silica, processes
 10377-52-3 12057-24-8, Lithium oxide (Li2O), processes
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (solid electrolyte for battery)
 IT 691009-59-3P, Lithium niobium oxide silicate
 (Li0.32Nb0.3200.29(SiO3)0.67) 691009-60-6P, Lithium niobium oxide silicate
 (Li1.16Nb0.5801.77(SiO4)0.13) 691009-62-8P, Lithium niobium oxide silicate
 (Li1.16Nb0.2600.65(SiO4)0.29) 691009-64-0P, Lithium niobium oxide silicate
 (Li1.34Nb0.3201.15(SiO4)0.16) 691009-66-2P, Lithium niobium oxide silicate (Li1.3Nb0.100.3(SiO4)0.3)
 691009-68-4P, Lithium niobium oxide silicate (Li1.4Nb0.200.8(SiO4)0.2) 691009-70-8P, Lithium niobium oxide silicate (Li1.4Nb0.100.45(SiO4)0.25) 691009-72-0P, Lithium oxide phosphate silicate

(Li_{1.55}O_{0.2}(PO₄)_{0.05}(SiO₄)_{0.25})

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(solid **electrolyte** for battery)

IT 7440-37-1, Argon, uses 7727-37-9, **Nitrogen**, uses
7782-44-7, Oxygen, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(solid **electrolyte** for battery)

L13 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:412652 HCAPLUS

DOCUMENT NUMBER: 140:378137

TITLE: Preparation of solid **electrolyte** for
lithium rechargeable batteries

INVENTOR(S): Shibano, Yasuyuki; Iwamoto, Kazuya

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 8 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2004096745	A1	20040520	US 2003-702491	200311 07
JP 2004179158	A2	20040624	JP 2003-381940	200311 12
PRIORITY APPLN. INFO.:		JP 2002-328476	A	200211 12

AB A lithium ion conductor is prepd. having the general formula
Li_aNb_bTa_cO_dNe where 0.1 ≤ a ≤ 2.5, 0 ≤ b < 1,
0 < c ≤ 1, b + c = 1, 0.1 ≤ d ≤ 5, and
0.1 ≤ e ≤ 2. The prepd. lithium ion conductor is used as
solid **electrolyte** in lithium ion rechargeable batteries.

IT 7631-86-9, **Silica**, uses

RL: DEV (Device component use); USES (Uses)
(prepn. of solid **electrolyte** for lithium rechargeable
batteries)

RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 7727-37-9P, **Nitrogen**, uses

RL: NUU (Other use, unclassified); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(prepn. of solid **electrolyte** for lithium rechargeable
batteries)

RN 7727-37-9 HCAPLUS

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)



IC ICM C01B021-20
 INCL 429322000; 423385000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST lithium secondary battery solid electrolyte oxide nitride
 IT Secondary batteries
 (lithium; prepn. of solid electrolyte for lithium rechargeable batteries)
 IT 7440-21-3, Silicon, uses
 RL: DEV (Device component use); USES (Uses)
 (base plate, electrode; prepn. of solid electrolyte for lithium rechargeable batteries)
 IT 1314-62-1, Vanadium pentoxide, uses 7439-93-2, Lithium, uses
 7782-42-5, Graphite, uses 12022-46-7, Iron lithium oxide felio2
 12031-65-1, Lithium nickel oxide linio2
 12031-95-7, Lithium titanium oxide li4ti5o12 12057-17-9, Lithium
 manganese oxide limn2o4 12190-79-3, Cobalt lithium oxide colio2
 13824-63-0, Cobalt lithium phosphate 15365-14-7, Iron lithium phosphate felipo4
 372075-87-1, Iron lithium fluoride phosphate felifpo4 433708-99-7, Cobalt lithium
 fluoride phosphate colifpo4 685528-73-8, Cobalt lithium nitride oxide (Co2.6LiNO0.4)
 RL: DEV (Device component use); USES (Uses)
 (electrode; prepn. of solid electrolyte for lithium rechargeable batteries)
 IT 7440-50-8, Copper, uses
 RL: DEV (Device component use); USES (Uses)
 (neg. electrode current collector; prepn. of solid electrolyte for lithium rechargeable batteries)
 IT 7440-06-4, Platinum, uses
 RL: DEV (Device component use); USES (Uses)
 (pos. electrode current collector; prepn. of solid electrolyte for lithium rechargeable batteries)
 IT 7631-86-9, Silica, uses
 RL: DEV (Device component use); USES (Uses)
 (prepn. of solid electrolyte for lithium rechargeable batteries)
 IT 7727-37-9P, Nitrogen, uses 12031-63-9P, Lithium niobium oxide linbo3
 12031-66-2P, Lithium tantalum oxide litao3
 RL: NUU (Other use, unclassified); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (prepn. of solid electrolyte for lithium rechargeable batteries)
 IT 685528-55-6P, Lithium tantalum nitride oxide (Li0.75TaNO.5O2.1)
 685528-56-7P, Lithium niobium tantalum nitride oxide (Li0.8Nb0.1Ta0.9NO.55O2.1)
 685528-57-8P, Lithium niobium tantalum nitride oxide (Li0.76Nb0.19Ta0.81NO.53O2.1)
 685528-58-9P, Lithium niobium tantalum nitride oxide (Li0.85Nb0.33Ta0.67NO.49O2.2)
 685528-59-0P, Lithium niobium tantalum nitride oxide (Li0.77Nb0.39Ta0.61NO.51O2.1)
 685528-60-3P, Lithium niobium tantalum nitride oxide (Li0.69Nb0.53Ta0.47NO.52O2.1)
 685528-61-4P, Lithium niobium tantalum nitride oxide (Li0.6Nb0.6Ta0.4NO.53O2)
 685528-62-5P, Lithium niobium tantalum nitride oxide (Li0.67Nb0.71Ta0.29NO.54O2)
 685528-63-6P, Lithium niobium tantalum nitride oxide (Li0.72Nb0.82Ta0.18NO.6O2)
 685528-64-7P, Lithium niobium tantalum nitride oxide (Li0.77Nb0.89Ta0.11NO.67O1.9)
 685528-65-8P, Lithium niobium tantalum nitride oxide (Li0.8Nb0.95Ta0.05NO.66O1.9)
 685528-66-9P, Lithium niobium nitride oxide (Li0.91NbNO.61O2)
 685528-67-0P, Lithium niobium tantalum nitride oxide (Li0.68Nb0.71Ta0.29NO.06O2.8)
 685528-68-1P, Lithium niobium tantalum nitride oxide (Li0.68Nb0.71Ta0.29NO.12O2.7)
 685528-69-2P, Lithium niobium tantalum nitride oxide (Li0.7Nb0.82Ta0.18NO.36O2.3)
 685528-70-5P, Lithium niobium

tantalum nitride oxide (Li_{0.75}Nb_{0.89}Ta_{0.11}N_{0.82}O_{1.6}) 685528-71-6P,
Lithium niobium tantalum nitride oxide (Li_{0.79}Nb_{0.95}Ta_{0.05}N_{1.10}O_{1.2})
685528-72-7P, Lithium niobium tantalum nitride oxide
(Li_{0.85}Nb_{0.75}Ta_{0.25}N_{1.50}O_{0.7})

RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)

(prepn. of solid electrolyte for lithium rechargeable
batteries)

L13 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:408230 HCAPLUS

DOCUMENT NUMBER: 140:409629

TITLE: Method of fabrication of lithium polymer energy
storage systems

INVENTOR(S): Naarmann, Herbert; Kruger, Franz Josef

PATENT ASSIGNEE(S): Gaia Akkumulatorenwerke G.m.b.H., Germany

SOURCE: Ger. Offen., 14 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10251238	A1	20040519	DE 2002-10251238	200211 04
WO 2004042858	A2	20040521	WO 2003-EP12241	200311 03

WO 2004042858 A3. 20050127

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,
SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,
ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG

AU 2003279344	A1	20040607	AU 2003-279344	200311 03
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EP 1652261	A2	20060503	EP 2003-772294	200311 03
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK

PRIORITY APPLN. INFO.: DE 2002-10251238 A 200211
04

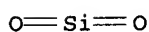
WO 2003-EP12241 W 200311
03

OTHER SOURCE(S): MARPAT 140:409629

AB A new procedure for the prodn. of a lithium polymer energy storage
system is disclosed. The energy storage systems so produced have an
active cathode mass, a polymer electrolyte separator and
an active anode mass. The active electrode masses are mixed with

conducting salts and optionally conducting salt additives and/or solvents, ground intensively, the active electrode masses subsequently formed with polymer binders to batches, extruded and laminated on a current collector. The laminated electrode masses are laminated sep. optionally with laminated separator in sandwich layer and are joined together, so that the active electrode masses have porous structure. The present invention creates a targeted and orderly arrangement and allocation of the active electrode components with optimized effectiveness, as compared to the conventional procedures where the resp. components of the electrode masses are present randomly distributed only according to the coincidence principle.

IT 7631-86-9, Silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (method of fabrication of lithium polymer energy storage systems)
 RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7727-37-9, Nitrogen, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (method of fabrication of lithium polymer energy storage systems)
 RN 7727-37-9 HCAPLUS
 CN Nitrogen (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-04
 ICS H01M004-48; H01M010-04; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 76
 IT 7429-90-5, Aluminum, uses 7439-93-2D, Lithium, org. borate
 7440-50-8, Copper, uses 7782-42-5, Graphite, uses 7791-03-9,
 Lithium perchlorate 9033-83-4, Polyphenylene 11126-15-1, Lithium
 vanadium oxide 12627-14-4, Lithium silicate 13453-69-5, Lithium
 metaborate 14283-07-9, Lithium tetrafluoroborate 18115-70-3,
 Lithium acetylacetonate, uses 21324-40-3, Lithium
 hexafluorophosphate 25067-58-7, Polyacetylene 33454-82-9,
 Lithium triflate 37296-91-6, Lithium molybdenum oxide
 37349-20-5, Lithium tungsten oxide 39300-70-4,
 Lithium nickel oxide 39302-37-9, Lithium titanium oxide
 39457-42-6, Lithium manganese oxide 51177-06-1, Chromium
 lithium oxide 51222-70-9, Lithium zirconium
 oxide 52627-24-4, Cobalt Lithium oxide
 90076-65-6, Lithium bis(trifluoromethylsulfonyl) imide
 RL: DEV (Device component use); USES (Uses)
 (method of fabrication of lithium polymer energy storage systems)
 IT 57-13-6, Urea, uses 79-41-4D, Methacrylic acid, fluoroalkyl ester
 463-79-6D, Carbonic acid, alkyl ester 1304-28-5, Barium oxide
 (BaO), uses 1309-48-4, Magnesium oxide (MgO), uses 1344-28-1,
 Alumina, uses 7631-86-9, Silica, uses
 9002-88-4, Polyethylene 9003-19-4, Polyvinyl ether 9003-29-6,
 Polybutene 9003-53-6, Polystyrene 24968-97-6, Polypyrrolidone
 25038-32-8, Isoprene-styrene copolymer 25190-89-0,
 Hexafluoropropylene-tetrafluoroethylene-vinylidene fluoride
 copolymer 26602-62-0, Butadiene-Isoprene-styrene copolymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (method of fabrication of lithium polymer energy storage systems)

IT 7727-37-9, Nitrogen, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (method of fabrication of lithium polymer energy storage systems)

L13 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:582740 HCAPLUS

DOCUMENT NUMBER: 139:137073

TITLE: Production of porous structure containing
 functional compound fine particles dispersed in
 overall position

INVENTOR(S): Yamauchi, Goro; Nakajima, Hideo; Taira,
 Hirohito; Mabuchi, Mamoru

PATENT ASSIGNEE(S): Japan Science and Technology Corporation, Japan;
 National Institute of Advanced Industrial
 Science and Technology

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003213352	A2	20030730	JP 2002-17453	200201 25
PRIORITY APPLN. INFO.: JP 2002-17453				200201 25

AB The title porous structure is composed of a matrix made of an
 element Y, and dispersed fine particles made of a X-Z compd. (X =
 element showing gaseous phase at an ordinary temp., Z = element
 showing high affinity with X). The porous structure is produced by
 heating a porous material (porosity 0.1-95.0%) made of Y contg.
 0.00001-70 at.% of Z in an atm. contg. X with partial pressure
 capable of forming the X-Z compd. but insufficient for forming a Y-X
 compd., to ppt. the X-Z compd. in the form of grains or plate-like
 in overall position of the porous material. OO X
 Si,Mn,P,Al,Zn,Ti,Ni,Cr,Co,Fe,Be,Mg;Cd,In,Zr,Sn,Ce,Ca,Ga,B,Sb,Tl,Pb,N
 b,Ta,Bi,Li,Mo,W,V,Pb,Hf 1 2 Z Z Ag,Cu,Ni,Fe,Pd,Co,Au,Pt,Cr,Mo,W,Ti,Z
 r,Hf,V,Nb,Ta,Ge,Sn,Pb 1 2 Y. NN X Ti,Zr,Al,Fe,Cr,Mo,V,Si 1 2 Z Z
 Ag,Cu,Ni,Fe,Pd,Co,Au,Pt,Cr,Mo,W 1 2 Y. FF X Be,Mg,Ca,Al,Ti,Si,Cr 1
 2 Z Z Ag,Cu,Ni,Fe,Pd,Co,Au,Pt,Cr,Mo,W,Ti,Zr 1 2 Y. HH X
 La,Ca,Li,Ti,K,Na,U,Mg,Ni,Co,V,Fe,Mn,Ce,Al,Y,Zr 1 2 Z Z
 Ag,Cu,Ni,Fe,Pd,Co,Au,Pt,Cr,Mo,W,Ti,Zr,Mg 1 2 Y. Thus, a porous
 Ni-Ti alloy embedded in powder mixt. of Ni oxide, Ni, and Al₂O₃, and
 heated in Ar to give a porous structure contg. anatase-type
 photocatalytic TiO₂ particles and rutile-type TiO₂ particles.

IT 7727-37-9, Nitrogen, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(atm.; in prodn. of porous structure contg. functional compd.
 fine particles dispersed in overall position)

RN 7727-37-9 HCAPLUS

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)



IT 1313-96-8P, Niobium oxide

1314-35-8P, Tungsten oxide, preparation

7631-86-9P, Silica, preparation

12057-24-8P, Lithium oxide, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pptd. fine particles; prodn. of porous structure contg.

functional compd. fine particles dispersed in overall position)

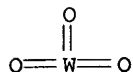
RN 1313-96-8 HCAPLUS

CN Niobium oxide (Nb2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

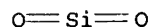
RN 1314-35-8 HCAPLUS

CN Tungsten oxide (WO3) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



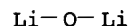
RN 7631-86-9 HCAPLUS

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 12057-24-8 HCAPLUS

CN Lithium oxide (Li2O) (8CI, 9CI) (CA INDEX NAME)



IC ICM C22C001-08

ICS C22C032-00

CC 56-4 (Nonferrous Metals and Alloys)

Section cross-reference(s): 52, 59, 74

IT 1333-74-0, Hydrogen, reactions 7727-37-9, Nitrogen

, reactions 7782-41-4, Fluorine, reactions 7782-44-7, Oxygen, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(atm.; in prodn. of porous structure contg. functional compd. fine particles dispersed in overall position)

IT 1303-86-2P, Boron oxide, preparation 1304-56-9P, Beryllium oxide, preparation 1304-76-3P, Bismuth oxide, preparation 1305-78-8P, Calcium oxide, preparation 1306-19-0P, Cadmium oxide, preparation 1308-38-9P, Chromia, preparation 1309-48-4P, Magnesium oxide, preparation 1312-43-2P, Indium oxide 1313-96-8P, Niobium oxide 1313-99-1P, Nickel oxide, preparation 1314-13-2P, Zinc oxide, preparation 1314-23-4P, Zirconium oxide, preparation 1314-35-8P, Tungsten oxide, preparation 1314-56-3P, Phosphorus oxide, preparation 1314-61-0P, Tantalum oxide 1327-33-9P, Antimony oxide 1332-29-2P, Tin oxide 1332-37-2P, Iron oxide, preparation 1335-25-7P, Lead oxide 1344-28-1P, Alumina, preparation 7580-67-8P, Lithium hydride 7631-86-9P, Silica, preparation 7646-69-7P, Sodium hydride 7693-26-7P, Potassium hydride 7693-27-8P, Magnesium hydride 7704-99-6P, Zirconium hydride 7783-40-6P, Magnesium fluoride 7784-18-1P, Aluminum fluoride 7784-21-6P, Aluminum hydride 7787-49-7P, Beryllium fluoride 7789-75-5P, Calcium fluoride, preparation 7789-78-8P, Calcium hydride 11098-99-0P, Molybdenum oxide 11099-11-9P, Vanadium oxide 11104-61-3P, Cobalt oxide 11113-56-7P, Chromium fluoride 11115-94-9P, Lanthanum hydride 11129-18-3P, Cerium oxide 11129-60-5P, Manganese oxide 11140-68-4P, Titanium hydride

12024-21-4P, Gallium oxide 12033-89-5P, Silicon nitride,
 preparation 12055-23-1P, Hafnium oxide 12057-24-8P,
 Lithium oxide, preparation 12643-00-4P, Cerium
 hydride 12651-21-7P, Thallium oxide 12656-23-4P, Yttrium hydride
 12674-04-3P, Vanadium nitride 12705-37-2P, Chromium nitride
 12713-06-3P, Vanadium hydride 13463-67-7P, Titania, preparation
 24304-00-5P, Aluminum nitride 25583-20-4P, Titanium nitride
 25658-42-8P, Zirconium nitride 37187-84-1P, Nickel hydride
 37245-77-5P, Iron nitride 37245-81-1P, Molybdenum nitride
 51142-88-2P, Titanium fluoride 51680-55-8P, Uranium hydride
 57571-85-4P, Manganese hydride 61229-82-1P, Cobalt hydride
 64296-66-8P, Iron hydride

RL: IMF (Industrial manufacture); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)

(pptd. fine particles; prodn. of porous structure contg.
 functional compd. fine particles dispersed in overall position)

L13 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:90544 HCAPLUS

DOCUMENT NUMBER: 136:137424

TITLE: Fabrication of lithium anodes and batteries

INVENTOR(S): Skotheim, Terje A.; Sheehan, Christopher J.;
 Mikhaylik, Yuriy V.; Affinito, John

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 22 pp., Cont.-in-part of
 U.S. Ser. No. 721,578.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002012846	A1	20020131	US 2001-864890	200105 23
US 6733924	B1	20040511	US 2000-721519	200011 21
US 6797428	B1	20040928	US 2000-721578	200011 21
CN 1728418	A	20060201	CN 2005-10079023	200011 21
WO 2002095849	A2	20021128	WO 2002-US16649	200205 23
WO 2002095849	A3	20031204		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2002312067	A1	20021203	AU 2002-312067	200205 23
EP 1407505	A2	20040414	EP 2002-739419	200205

EP 1407505 B1 20050803 23
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 CN 1511351 A 20040707 CN 2002-810473 200205
 23
 JP 2004527888 T2 20040909 JP 2002-592213 200205
 23
 US 2005008935 A1 20050113 US 2004-913839 200408
 06
 US 6936381 B2 20050830
 PRIORITY APPLN. INFO.: US 1999-167171P P 199911
 23
 US 2000-721519 A2 200011
 21
 US 2000-721578 A2 200011
 21
 CN 2000-818169 A3 200011
 21
 US 2001-864890 A 200105
 23
 WO 2002-US16649 W 200205
 23

AB Provided is an anode for use in electrochem. cells, wherein the
 anode active layer has a first layer comprising lithium metal and a
 multi-layer structure comprising single ion conducting layers and
 polymer layers in contact with the first layer comprising lithium
 metal or in contact with an intermediate protective layer, such as a
 temporary protective metal layer, on the surface of the
 lithium-contg. first layer. Another aspect of the invention
 provides an anode active layer formed by the in-situ deposition of
 lithium vapor and a reactive gas. The anodes of the current
 invention are particularly useful in electrochem. cells comprising
 sulfur-contg. cathode active materials, such as elemental sulfur.

IT 7631-86-9, Fumed silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (colloidal; fabrication of lithium anodes and batteries)
 RN 7631-86-9 HCAPLUS
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 7727-37-9, Nitrogen, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (fabrication of lithium anodes and batteries)
 RN 7727-37-9 HCAPLUS
 CN Nitrogen (8CI, 9CI) (CA INDEX NAME)



IC H01M004-40; H01M004-66; B05D005-12
 INCL 429231950
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 IT 7631-86-9, Fumed silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (colloidal; fabrication of lithium anodes and batteries)
 IT 110-71-4 646-06-0, 1,3-Dioxolane 1344-28-1, Dispal 11N7-12, uses
 7439-93-2, Lithium, uses 7704-34-9, Sulfur, uses 12031-63-9,
 Lithium niobium oxide (LiNbO₃) 12769-51-6,
 Lithium tantalum oxide 37220-89-6, Lithium
 aluminate 39302-37-9, Lithium titanium oxide 90076-65-6, Lithium
 bis(trifluoromethylsulfonyl)imide 152747-89-2, Lanthanum
 lithium oxide 184905-46-2, Lithium
 nitrogen phosphorus oxide 236388-73-1, Lithium silicide
 sulfide 236388-74-2, Lithium boride sulfide 236388-75-3,
 Aluminum lithium sulfide 342379-43-5, Germanium lithium sulfide
 RL: DEV (Device component use); USES (Uses)
 (fabrication of lithium anodes and batteries)
 IT 74-85-1, Ethylene, uses 74-86-2, Acetylene, uses 124-38-9,
 Carbon dioxide, uses 7440-50-8, Copper, uses 7446-09-5, Sulfur
 dioxide, uses 7727-37-9, Nitrogen, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (fabrication of lithium anodes and batteries)

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